What is phonetics?

Definition: The study of speech sounds

Branches:
1. acoustic (the physics of sound)
2. auditory (how the ear processes sound)
3. articulatory (how we produce speech sounds)
Why do we need a phonetic alphabet?
Why do we need a phonetic alphabet?

English:

\<c> \ [k] \\
cat \\
cord \\
cup

Czech:

\<c> \ [ts] \\
co ‘what’ \\
Václav (name) \\
třicet ‘thirty’
Why do we need a phonetic alphabet?

In English:

\(<a>\) ball sand make
\(<t>\) tall stop later patience train
Why do we need a phonetic alphabet?

In English:

<ea>health each

wealth meal

<ck> back

bucket
Why do we need a phonetic alphabet?

In English:

<e>  \textit{late}

<h>  \textit{hour}

<k>  \textit{knee}
Why do we need a phonetic alphabet?

In English:

Vowel letters: <a, e, i, o, u>

Vowel sounds:

- monophthongs: beat, bit, bate, bet, bat, boot, bull, boat, bought, (ro)bot, but, bulemic, *bird

- diphthongs: bow, bout, bide, bike, boy
International Phonetic Alphabet (IPA)

- single alphabet with symbols to represent sounds from all languages
- one-to-one correspondence between sounds and symbols
- includes special symbols to indicate minor variation and things like tone, stress, etc.
- most symbols from Latin and Greek alphabets
This is only part of the IPA. A full chart will be handed out later.
International Phonetic Alphabet (IPA)

• IPA is not the only phonetic alphabet used, though it is the most common
Describing English Consonants

We can distinguish all English consonants from each other using three features:

1. place of articulation
2. manner of articulation
3. voicing
Places of Articulation

- refers to which parts of the vocal tract are used to make consonant sounds

Source: Ladefoged & Maddieson (1996:13)
Places of Articulation

English uses the following places of articulation:
1. bilabial
2. labiodental
3. interdental
4. alveolar
5. postalveolar
6. palatal
7. velar
8. glottal
Manners of Articulation

• refers to how the air is manipulated when makings sounds
Manners of Articulation

English uses the following manners of articulation

1. plosive (= stop)
2. fricative
3. affricate
4. nasal
5. approximant
6. lateral approximant
7. flap
Manners of Articulation

Rather than using the terms “approximant” and “lateral approximant”, you will frequently see the following:

• liquid = [l] and [ɹ]
• glide = [j] and [w]
Voicing

• refers to whether the vocal cords (=glottis) are vibrating or not when making sounds
• lets us distinguish many plosives, affricates and fricatives in English
• (technically, this could be considered a ‘manner’)
Voicing

Consonant sounds can be:

1. voiced (vibration)
2. voiceless/unvoiced (no vibration)
The Consonants of English

<table>
<thead>
<tr>
<th></th>
<th>bilabial</th>
<th>labiodental</th>
<th>interdental</th>
<th>alveolar</th>
<th>post-alveolar</th>
<th>palatal</th>
<th>velar</th>
<th>glottal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>plosive</strong></td>
<td>p</td>
<td>b</td>
<td></td>
<td>t</td>
<td>d</td>
<td>k</td>
<td>g</td>
<td>?</td>
</tr>
<tr>
<td><strong>affricate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tʃ</td>
<td>dʒ</td>
</tr>
<tr>
<td><strong>fricative</strong></td>
<td>f</td>
<td>v</td>
<td>θ</td>
<td>s</td>
<td>z</td>
<td></td>
<td>h</td>
<td></td>
</tr>
<tr>
<td><strong>flap</strong></td>
<td></td>
<td></td>
<td></td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>nasal</strong></td>
<td>m</td>
<td></td>
<td></td>
<td>n</td>
<td></td>
<td></td>
<td></td>
<td>η</td>
</tr>
<tr>
<td><strong>approximant</strong></td>
<td>w</td>
<td></td>
<td></td>
<td>r</td>
<td></td>
<td></td>
<td></td>
<td>j</td>
</tr>
<tr>
<td>**lateral</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>approximant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>l</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
The handout I gave you lists [w] as a velar sound. Actually, it is a co-articulated sound, in this case using **two places of articulation** at the same time. In reality, it is labio-velar, so there is no perfect place to put it.

Also note that I include a glottal plosive [?] that was not on the handout. This is usually called a ‘glottal stop’.

When writing about English, people frequently use [r] in place of [ɹ]. Technically, this is not correct ([r] is a different sound in the IPA), but be aware that you will see it.
Describing English Vowels

We can distinguish most English consonants from each other using three features:

1. height
2. frontness/backness
3. tenseness

Additionally, we frequently talk about roundedness of vowels, though this is less important in English than other languages.
Height

• refers to the relative height of the relevant part of the tongue when producing a sound
Height

- English vowels can be
  1. high
  2. mid
  3. low
Frontness/Backness

• refers to the part of the mouth part of the tongue move toward
Frontness/Backness

English vowels can be
1. front
2. central
3. back
Tenseness

• refers to whether the lip/tongue muscles are relatively tensed or relaxed when producing a vowel sound
Tenseness

English vowels can be

1. tense
2. lax
Roundedness

• refers to whether the lips are rounded or not when producing a vowel sound
Roundedness

English vowels can be
1. round(ed)
2. unround(ed)
The Vowels of English

- The chart below shows the monophthongs of English

*[e] and [o] are actually pronounced as diphthongs in English, but we will ignore this.
Other languages?

• The distinctions here are relevant for English.

• Other languages may have distinctions English doesn’t have.

• Not all languages have all the distinctions that English has.
References
