Cued Articulation Course Notes Introduction

Cued Articulation

Cued Articulation is a set of hand cues for teaching the individual sounds in a word.

The hand movements are logical - each hand movement represents one sound and, because the cue demonstrates where and how the sound is made, the cue gives clues as to how the sound is produced.

Cued Articulation is not a sign language where the whole word is signed – however, Cued Articulation can be used alongside sign languages.

Cued Articulation is a system where individual sounds, being targeted in the classroom or Speech Pathology clinic, can be made explicit – we don't cue all the sounds in all the words all the time!

The system also includes Colour Coding of the letters which represent these sounds.

Development

Jane Passy devised the cues during her Speech Pathology career.

Teachers found that their use of Cued Articulation in the classroom developed the sound awareness skills of all their students, and themselves.

Cued Articulation used with success:

- as part of a general classroom literacy program.
- with students with speech, language and communication needs.

Phonological Awareness

Involves conscious awareness that spoken words are composed of units of sound, and that they can be analysed, manipulated, and substituted.

- a reliable predictor of later reading ability. '…a child's phonological awareness has been described as the best single predictor of reading performance' (Gillon, 2004).
- Early language experiences play an important role in the development of early PA: '…many children develop phonological …skills simply from being exposed to relevant literary activities, such as hearing nursery rhymes' (McCutcheon et al, 2002).
- Improved PA usually results in improved reading ability: '…early, systematic instruction in phonological awareness and phonics provided in the general education classroom improves children's early reading skills' (Bos, 2001).

Phonological awareness progresses from large units to small (Cupples, 2001; Gillon, 2004; Melby-Lervåg, Lyster, & Hulme, 2012).

- word awareness
- syllable awareness
- onset (initial sound/sounds) – rime (the vowel and the rest of the syllable)
- individual sounds

Cued Articulation can assist students to identify and discriminate sounds – the visual cue provides extra feedback by making the initial sound, or onset, more explicit.

Cued Articulation and literacy programs

Cued Articulation: a tool alongside any literacy program which has a phonic base.

Outcomes of the course:

you will:

1. Understand how speech sounds are produced and the systems involved in using sounds in English
2. Understand how the sound system fits in with the acquisition of speech sounds in normal speech development
3. Use the 26 consonant cues
4. Use the colour coding of the consonant sounds – useful for ESL and HI
5. Understand the complexity of English vowels
6. Use the vowel cues
7. Relate sounds, for which you have learned Cues, to their written representation
8. Apply Cued Articulation and colour coding in the classroom

Aim:

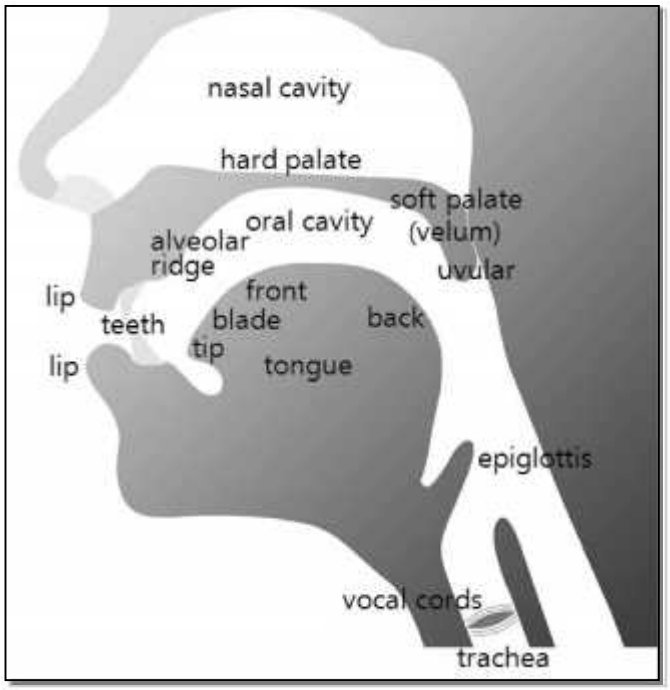
The aim of this training is to improve our students' literacy learning by improving their phonological awareness. This is achieved by deepening teachers' understanding of our English sounds and sound system to enable them to provide focused, sequenced phonological awareness training.

Cued Articulation training

1. provides this understanding for teachers
2. provides a tool to take this new understanding to the classroom

The Sound System

The Sound Makers - the articulators.



Features of Sounds

Cued Articulation reflects the three features of sounds.

1) Manner of articulation.
   - stops or plosives: made by stopping the air flow. Cues have short jerky movements.
   - nasals: air is directed through the nose. Cues are placed on the nose.
   - fricatives: made by impeding the air as it travels through the oral cavity. Cues have a long slow movement to indicate the steady flow of air.

2) Place of articulation.
   - Sounds articulated at the lips (eg 'p'): the cue is placed by the lips. Sounds at the back of the mouth (eg 'k'): hand placed the by the throat. So the placement of the hand while making the cue reflects the place of articulation.

3) Voicing.
   - Is the consonant voiced or unvoiced? The vocal cords are not vibrated for every sound. Cues for unvoiced sounds: one finger (and sometimes the thumb); cues for voiced sounds: two fingers.

So, Cued Articulation reflects the three features of sounds:

the cue for p:
- manner: a short movement
- place: cue placed at the lips
- voicing: cue has one finger

(see pp. 2-4, Passy (2010) *Cued Articulation Consonants and Vowels*).

Articulatory Awareness

Research has shown that the awareness of the articulatory movements to make speech sounds makes it easier for children to make graphophonemic connections – i.e. letter sound links – to identify written words and secure them in memory (Boyer & Ehri, 2011; Castiglioni-Spalte & Ehri, 2003).

The Sound chart

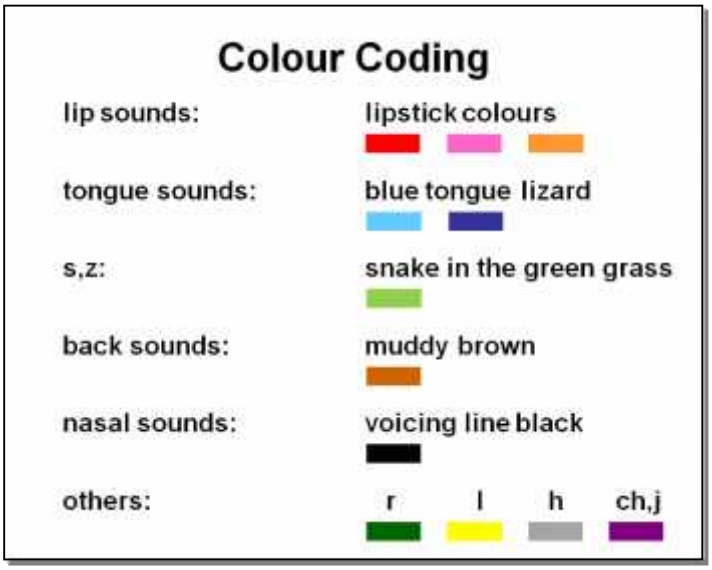
WHERE / HOW	both lips *bilabial*	lips and teeth *labio-dental*	teeth *dental*	upper tooth ridge *alveolar*	*palato-alveolar*	*retroflex*	hard palate *palatal*	soft palate *velar*	glottis (throat) *glottal*
stops:	p b			t d				k g	
nasals:	m			n				ng	
fricatives:	wh	f v	th th	s z	sh ʒ		ç		h
affricates:					ch j				
liquids:				l		r			
glides:	w						y		

This is a simplified IPA (International Phonetic Alphabet) chart, here representing the generally accepted sounds of standard English see p. 7 Passy (2010), *Cued Articulation Consonants and Vowels*.

Colour Coding

Note the colour coding of all the consonants on this chart. The colour in which the written letters are underlined represents the SOUND those letters make regardless of how the word is spelt.

See p. 4, (Passy 2010) *Cued Articulation Consonants and Vowels*.



44 Phonemes

There are 44 sounds, or phonemes, in English.
They consist of 24 consonants and 20 vowels. For the 44 sounds, there are only 26 letters in the alphabet to represent the sounds. We spell many sounds with more than one letter:

- Phonemes spelt with one letter: 'graph' 'a' (cat)
- Phonemes spelt with two letters: 'digraph' 'sh' (ship)
- Phonemes spelt with three letters: 'trigraph' 'tch' (watch)
- Phonemes spelt with four letters: 'quadraph' 'ough' (through)

No matter how many letters spell those sounds we just use one cue. We cue SOUNDS, not letters.

Consonants – Stops & Nasals

WHERE / HOW	both lips *bilabial*	lips and teeth *labio-dental*	teeth *dental*	upper tooth ridge *alveolar*	*palato-alveolar*	*retroflex*	hard palate *palatal*	soft palate *velar*	glottis (throat) *glottal*
stops:	p b			t d				k g	
nasals:	m			n				ng	
fricatives:	wh	f v	th th	s z	sh ʒ		ç		h
affricates:					ch j				
liquids:				l		r			
glides:	w						y		

Stops

Stops are made by blocking then releasing the air.

'p' Unvoiced bilabial stop

See p. 10, Passy (2010), *Cued Articulation Consonants and Vowels*.
Spelling choices: p (pear), pp (apple).

'b' Voiced bilabial Stop

See p. 11 *Cued Articulation Consonants and Vowels*.
Spelling choices: b (big), bb (ribbon).

't' Unvoiced alveolar stop

See p. 12 *Cued Articulation Consonants and Vowels*.
Spelling choices: t (tap), tt (butter), ed (kissed), cht (yacht).

'd' Voiced alveolar stop

See p. 13 *Cued Articulation Consonants and Vowels*.
Spelling choices: d (door), dd (teddy), ed (called).

'k' Unvoiced velar stop

See p. 14 *Cued Articulation Consonants and Vowels*.
Spelling choices: k (key), c (car), ck (back), q (quiz), first part of x (fox).

'g' Voiced velar stop

See p. 15 *Cued Articulation Consonants and Vowels*.
Spelling choices: g (girl), gg (bigger).

Nasals

The air is directed through the nose by lowering the soft palate. The voice is used for all nasals.

'm' Bilabial nasal

See p. 16 *Cued Articulation Consonants and Vowels*.
Spelling choices: m (moon), mm (dimmer), mb (comb), mn (column).

'n' Alveolar nasal

See p. 17 *Cued Articulation Consonants and Vowels*.
Spelling choices: n (name), nn (tennis), gn (gnome), kn (know), pn (pneumatic).

'ng' Velar nasal

See p. 18 *Cued Articulation Consonants and Vowels*.
Spelling choices: ng (long), n (finger).

Common cueing errors

These are some common errors made when cueing.

- It is important that we do not add an 'uh' sound after an unvoiced consonant – we don't say 'tuh' we say 't'.
- It is important to make the cue close to the action, so you draw children's attention to the place of articulation.
- Don't make the cue in front of the mouth, as this would block the view of what's happening.
- Only make the cue as the particular sound is articulated.

Colour Coding Worksheet 1

/p/ /b/ /m/	/t/ /d/ /n/	/k/ /g/ /ŋ/(ng)
pip	tin	kick
pump	din	girl
plum	did	gym
plumber	tapped	singing
baby	rubbed	kinky
maybe	missed	knee
bomb	watched	tangle
bombardment	heard	chemist
mummy	end	queen
puppy	daddy	bridge
photo	dented	laugh
pneumatic	gnome	

Underline the letters that spell the sounds in the words with colours as shown at the head of the table columns.

Sounds/Syllables Catch-Up

	Syllables	Sounds
		
		
		
		
		
		
		
		

	Syllables	Sounds
 laughed		
mother		
		
		
		
		
		
 washing		

Consonants – Fricatives & Affricates

WHERE / HOW	both lips *bilabial*	lips and teeth *labio-dental*	teeth *dental*	upper tooth ridge *alveolar*	*palato-alveolar*	*retroflex*	hard palate *palatal*	soft palate *velar*	glottis (throat) *glottal*
stops:	p b			t d				k g	
nasals:	m			n				ng	
fricatives:	wh	f v	th th	s z	sh ʒ		ç		h
affricates:					ch j				
liquids:				l		r			
glides:	w						y		

Fricatives

Fricatives are made by forcing air through a narrow channel made by placing two articulators close together.

'f' Unvoiced labiodental fricative

See p. 20 Passy (2010) *Cued Articulation Consonants and Vowels*.
Spelling choices: f (for), ff (off), ph (phone), gh (cough).

'v' Voiced labiodental fricative

See p. 21 *Cued Articulation Consonants and Vowels*.
Spelling choices: v (van), f (of).

's' Unvoiced alveolar fricative

See p. 22 *Cued Articulation Consonants and Vowels*.
Spelling choices: s (seat), ss (grass) c (city), sc (scene), se (course), second half of x (box).

'z' Voiced alveolar fricative

See p. 23 *Cued Articulation Consonants and Vowels*.
Spelling choices: z (zoo), zz (buzz), s (digs), ss (scissors), x (xylophone).

'sh' Unvoiced palato-alveolar fricative

See p. 24 *Cued Articulation Consonants and Vowels*.
Spelling choices: sh (shop), s (sugar), ti (friction), ci (precious), sci (luscious), ssi (passion), ch (chalet), c (ocean).

'ʒ' Voiced palato-alveolar fricative

See p. 25 *Cued Articulation Consonants and Vowels*.
Spelling choices: si (vision), z (seizure), ge (beige).

Affricates

‘ch’ Unvoiced palato-alveolar affricate

See p. 28 *Cued Articulation Consonants and Vowels*.
Spelling choices: ch (chew), tch (match).

‘j’ Voiced palato-alveolar affricate

See p. 29 *Cued Articulation Consonants and Vowels*.
Spelling choices: j (jeep), g (giraffe), ge (orange), dge (fudge).

Fricatives continued

‘th’ Unvoiced dental fricative

See p. 26 *Cued Articulation Consonants and Vowels*.
Spelling choices: th (think).

‘th’ Voiced dental fricative

See p. 27 *Cued Articulation Consonants and Vowels*.
Spelling choices: th (there).

‘h’ Glottal fricative

See p. 19 *Cued Articulation Consonants and Vowels*.
Spelling choices: h (house).

‘wh’ Bilabial fricative

See p. 36, *Cued Articulation Consonants and Vowels*.
Spelling choices: wh (where).

Australian speakers say ‘w’ instead of this sound, so you don’t need to learn the cue. Be aware that people with other dialects of English may use this sound.

/ç/ Palatal fricative

See p. 36, *Cued Articulation Consonants and Vowels* (Passy, 2010).
Spelling choices: h (human). You will not need to use this cue, but just be aware of the presence of this sound, and avoid using examples starting with this sound when you are teaching the ‘h’ sound.

Morphological Endings

"s" ending (Words ending in unvoiced consonants - p, t, k, f, th)	**"z" ending** (Words ending in voiced consonants - b, d, g, v, th, m, n, l, or a vowel)	**"ez" ending** (Words ending in s, z, sh, ch, or j)
1. Plural		
crops	crabs	buses
hats	birds	noses
books	frogs	bushes
cuffs	waves	witches
troughs	videos	pages
moths	hens	
	wheels	
	bananas	
	videos	
2. Present Tense		
jumps	rubs	misses
sits	wades	hisses
kicks	wags	buzzes
laughs	dives	fishes
	breathes	finishes
	irons	touches
	crawls	judges
	draws	
3. Possessive		
Pip's	Bob's	the boss's
the boat's	Arnhem Land's	James'
Luke's	the dog's	Trish's
the roof's	Love's	Patch's
	my mum's	Madge's
	that man's	
	Australia's	

Colour Code the morphological ending in these words: use a light green marker.

Past Tense Verbs

Although the written ending to indicate past tense in regular verbs is always "ed", the way this ending is pronounced is determined by the consonant (or vowel) sound preceding the "ed" ending.

"t" ending (Verbs ending in unvoiced consonants)	**"d" ending** (Verbs ending in voiced consonants or a vowel)	**"ed" ending** (Verbs ending in t or d)
popped	rubbed	shouted
kicked	hugged	landed
kissed	buzzed	
laughed	waved	
watched	judged	
	climbed	
	ironed	
	banged	
	called	
	roared	

Colour Code the morphological ending in the words above: use a light blue marker.

Colour Coding Worksheet 2

/f/ /v/	/s/ /z/	/ʃ/ (sh) /ʒ/
five	sees	shoe
photo	cease	sure
of	use (noun)	passion
off	use (verb)	sugar
cough	face	seizure
Philip	city	treasure
through	vision	vision
trough	xylophone	friction
live	box	beige
life	sixty	charade

Underline the letters that spell the sounds in the words with colours as shown at the head of the table columns.

Colour Coding Worksheet 3

/ʧ/(ch) /ʤ/(j)	/θ/(th) /ð/(th)	/h/
chicken	thin	how
choir	fourth	who
watch	bath	thin
judge	bathe	hair
giraffe	bathers	bough
jam	breath	shine
George	breathe	what
gymnasium	these	church
orchard	nothing	photograph
orchid	without	huge

Underline the letters that spell the sounds in the words with colours as shown at the head of the table columns.

Consonants – Liquids & Glides

WHERE / HOW	both lips *bilabial*	lips and teeth *labio-dental*	teeth *dental*	upper tooth ridge *alveolar*	*palato-alveolar*	*retroflex*	hard palate *palatal*	soft palate *velar*	glottis (throat) *glottal*
stops:	p b			t d				k g	
nasals:	m			n				ng	
fricatives:	wh	f v	th th	s z	sh ʒ		ç		h
affricates:					ch j				
liquids:				l		r			
glides:	w						y		

Liquids

Liquids are made by some narrowing of the vocal tract, but no stopping or real impedance of the airflow. All liquids are voiced.

'l' Alveolar liquid

See p. 30, *Cued Articulation Consonants and Vowels*.
Spelling choices: l (look), ll (yellow).

Blends / Digraphs

Blend: two, or three, letters spelling two, or three, sounds (requiring two, or three, cues)
Digraph: two letters spelling one sound (one cue).
Note that the colour coding will show just how many sounds must be said, and cued:

In **blends**, each letter spells its own sound:
p-l-ay, where P and L each spell a sound, so we'll need to cue a 'p' and an 'l'
s-t-o-p, where S and T each spell a sound
s-p-l-a-t, where S, P and L each spell a sound
p-r-a-m, where P and R spell a sound
f-i-n-g-er, where N spells 'ng' and G spells 'g' - each letter spelling its own sound
b-e-s-t, where S and T spell a sound

In **digraphs**, two letters spell only one sound:
sh-o-p, where S and H spell the single sound 'sh'
ch-i-ck, where C and H spell the single sound 'ch' and C and K spell the single sound 'k' at the end of the word.
th-a-t, where T and H spell the single sound 'th'
s-i-ng, where N and G spell the single sound 'ng'
c-o-mb. where M and B spell the single sound 'm'

'r' Retroflex liquid

See p. 31, *Cued Articulation Consonants and Vowels*.
Spelling choices: r (run), rr (hurry), wr (wrong).

Glides

Glides are made by gliding from one vowel position to another.

'w' Bilabial glide

See p. 32, *Cued Articulation Consonants and Vowels*.
Spelling choices: w (watch), wh (whale), u (quiz), first half of o (one).
Some English speakers say /ʍ/ for wh spellings.
w-r activity

'y' Palatal glide

See p. 33, *Cued Articulation Consonants and Vowels*.
Spelling choices: y (yacht), first half of u (unicorn)

Colour Coding Worksheet 4

/ l / / ɹ /(r)	/ w / / j /(y)
rat	witch
label	your
liberally	pay
hurry	by
wrong	busy
flower	yellow
lovely	cow
walk	what
rolled	queen
bird	one
very	utility
car	few

Underline the letters that spell the sounds in the words with colours as shown at the head of the table columns.

Normal Sound Acquisition

Although there are differences in individual speech sound acquisition, we can make a broad generalisation about the sequence in which speech sounds are acquired in English. Sounds which are likely to be acquired early are:

m, n, y, b, w, d, p, h

and then:

t, ng, k, g, f, v, ch, j

The sounds likely to appear later are:

sh, voiced sh, l, r, s, z, th, voiced th

(Shriberg, 1993)

There are no fricatives in this first group, except for 'h': the sounds here are made up of stops, nasals and glides. Some fricatives appear in the second group of sounds, and the later-appearing fricatives, and the liquids, in the last group of sounds.

The sound substitutions demonstrated by children as their sound system develops can be described in terms of phonological processes - these processes determine the substitutions he uses.

Using Cued Articulation to Reinforce Phonological Therapy

The following processes occur normally in early speech development. Children may require some intervention if these phonological processes persist beyond the age at which they should have been resolved, and more mature processes have not developed. Remember that immature phonology may be a sign of more global speech or language problems. Refer to the Speech Pathologist for an analysis of the child's phonology so that any <u>deviant</u> processes or other language problems can be investigated.

- stopping of fricatives: eg f → b , far → 'bar'
  - Show the difference between the <u>long</u> /f/ cue and the <u>short</u> /b/ cue.
- deletion of final consonants: eg mop → 'mo', bus → 'bu'
  - cue the final consonant
- gliding of liquids r → w, l → y
- fronting of velars: k → t, g → d
  - Show the difference between the front cue for /t/, /d/ and the back cue for /k/, /g/.
- reduction of blends (clusters) eg stack → 'tack', spoon → 'poon'
  - Cueing each consonant of a blend helps the child 'see' what sounds have to be articulated, and spelt.
- voicing of unvoiced stops: p → b, t → d
  - Show the difference between the cues for the quiet and noisy sound (ie unvoiced and voiced).

Learning a Second Language

Both the English speaker learning a second language and a foreign speaker learning English as a second language will experience three main difficulties:

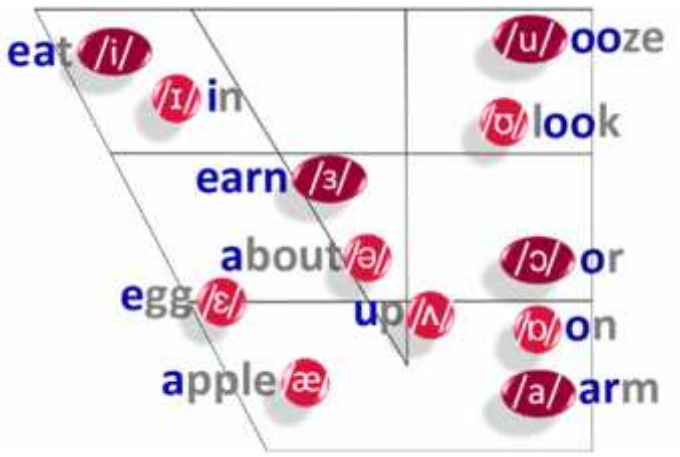
- Substitution for sounds not present in their first language with the closest equivalent from their first language.
- Discrimination – difficulty hearing, detecting and distinguishing between sounds in the new language.
- Pronunciation – difficulty pronouncing the new sounds because of the unfamiliar tongue and mouth position required in the new language.

Cued Articulation can assist the new language learner 'see' the sounds of the new language and therefore help them hear and make the new sounds.

The Vowel System

Vowel sounds are produced when air flows freely through the mouth.
Different vowel sounds are made by changes mainly in the tongue position - the lips move during vowel production, but they serve only to refine the quality of the vowel produced.
See p. 37, Passy (2010), *Cued Articulation Consonants and Vowels*.

12 Pure vowels



Vowel Cues

Unlike consonants, it is not possible to describe in words the fine differences in tongue position required for vowel production. Cued Articulation cues provide a visual clue about how to make vowel sounds.

Long/short

- long vowels: long movement,
- short vowels: short quick movement.

Front/back/central

- front vowels: forward movement, with a spread hand shape to reflect the spread lips of these vowels,
- back vowels: backward movement with a round hand shape to reflect the round lips of these vowels and
- central vowels: sideways movement.

Pure/diphthongs

- pure vowels: single hand shape and movement,
- diphthongs: cues reflect the changing tongue and lip positions of these vowels, showing the two positions required for these vowels.

The vowel space chart shows the 12 pure vowels of English which are made up of:

- four front vowels - /i/, /ɪ/, /ɛ/, /æ/. For these sounds the body of the tongue rises towards the front of the mouth.
- five back vowels - /u/, /ʊ/, /ɔ/ /ɒ/ /a/. For these sounds the tongue rises towards the back of the mouth.

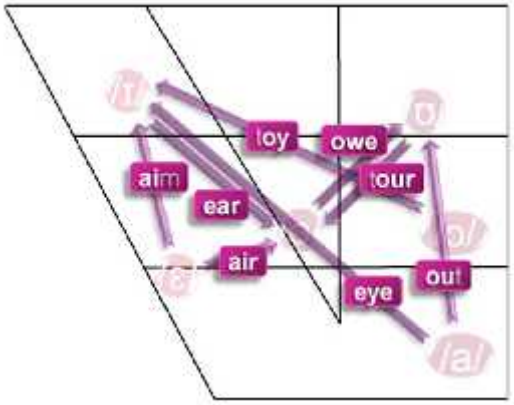
- and three central vowels: /ɜ/, /ə/, /ʌ/. For these sounds the tongue lies centrally in the mouth.

The pure vowels can also be categorised as short and long vowels.

- The seven short vowels are indicated by the light red circles.
- The five long vowels are indicated by the dark red ovals.

8 Diphthongs

Diphthongs are made by gliding from one vowel position to another. Note here how the tongue moves from one position to another in order to articulate the complete diphthong: /ay/, /oh/, /ie/, /ow/, /oy/, /ear/, /air/, /ure/.



Triphthongs

As well as diphthongs, there are triphthongs, which are made by gliding through three vowel sounds, such as ‘our’ and ‘ire’.

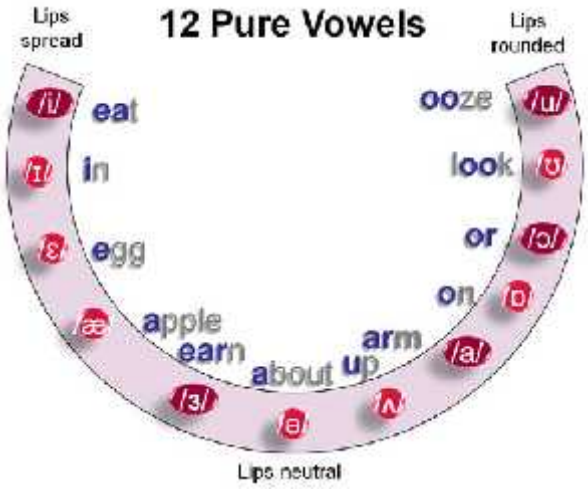
Vowel phonemes

For the 20 vowel phonemes we have only 5 vowel letters - AEIOU. So many vowel phonemes are spelt with more than one letter:

- vowel phonemes spelt with one letter - the short vowel sounds are often spelt with one letter. Also, e.g, when Y spells ‘ee’ or ‘ie’, as in ‘happy’ and ‘sky’.
- vowel phonemes spelt with two letters are vowel digraphs. E.g. ee, ar, or, al, aw (note these three different spellings for the same sound), ay, oy, oo.
- vowel phonemes spelt with three letters are vowel ‘trigraphs’, such as, igh, oar, ear.
- vowel ‘quadraphs’ - vowels spelt with four letters for example OUGH spelling ‘oo’, ‘oh’, ‘ow’, and so on.

Vowel Circle

The pure vowels can be plotted on a semi-circle which can be seen to reflect tongue position. As the tongue position lowers for the low front vowels, they can be plotted coming down the semi-circle. Then the central, or mid-position vowels. Then, the back vowels start low on the semi-circle and move higher as the tongue moves higher in the back of the mouth. As we say the vowels in this sequence, our lip position moves from a spread position for the /i/ vowel, through a more neutral position for the central vowel, to a round shape for the back vowels – front vowels are associated with a spread lip position, and back vowels with a round lip position.



12 Pure Vowels

Front Vowels – lips spread

1. ‘ee’ /i/ she, eat
2. ‘i’ /ɪ/ hit, busy
3. ‘e’ /ɛ/ head, said
4. ‘a’ /æ/ plait, pack

Back Vowels – lips rounded

5. ‘ar’ /a/ arm, grass
6. ‘o’ /ɒ/ cough, want
7. ‘or’ /ɔ/ or, bought
8. ‘ʊ’ /ʊ/ put, wood
9. ‘oo’ /u/ moon, shoe

Central Vowels – lips neutral

10. ‘u’ /ʌ/ up, rough
11. ‘er’ /ɜ/ hurt, bird
12. ‘ə’ /ə/ the, cricket

8 Diphthongs

13. ‘ay’ /ɛɪ/ aim, day
14. ‘oh’ /əʊ/ oat, go
15. ‘igh’ /aɪ/ by, high
16. ‘ow’ /aʊ/ out, now
17. ‘oy’ /ɔɪ/ oil, boy
18. ‘ear’ /ɪə/ ear, deer
19. ‘air’ /ɛə/ pear, there
20. ‘ure’ /ʊə/ cure, doer

Pure Vowels

Short Vowels

/æ/ (apple) See p. 50, Passy (2010), *Cued Articulation Consonants and Vowels*.
Spelling choices: a (apple), ai (plait).

/ɛ/ (egg) See p. 48, *Cued Articulation Consonants and Vowels*.
Spelling choices: e (egg), a (many), u (bury), ea (head), eo (leopard), ai (said), ie (friend), ue (guess).

/ɪ/ (in) See p. 46, *Cued Articulation Consonants and Vowels*.
Spelling choices: i (in), u (busy), y (gym), o (women), ie (sieve), ui (biscuit).

/ɒ/ (on) See p. 54, *Cued Articulation Consonants and Vowels*.
Spelling choices: o (box), a (want), ou (cough) au (auction).

/ʌ/ (up) See p. 62, *Cued Articulation Consonants and Vowels*.
Spelling choices: u (up), o (monkey), oo (blood), oe (does), ou (rough).

/ʊ/ (good) See p. 58, *Cued Articulation Consonants and Vowels*.
Spelling choices: u (bush), o (woman), oo (good), oul (would).

/ə/ (about) See p. 66, *Cued Articulation Consonants and Vowels*.
Spelling choices: many vowel spellings in unstressed syllables, such as '**a**bout' and 'c**o**mput**e**r'.

Long Vowels

/a/ (arm) See p. 52, *Cued Articulation Consonants and Vowels*.
Spelling choices: a (grass), ar (arm), al (calm), au (aunt), er (clerk), aar (bazaar), ear (heart), are (are), uar (guard).

/ɔ/ (or) See p. 56, *Cued Articulation Consonants and Vowels*.
Spelling choices: a (fall), or (or), oa (broad), ar (warm), al (walk), aw (law), au (sauce), ore (core), oor (floor), oar (oar), our (four), awe (awe), augh (taught), ough (bought).

/ɜ/ (earn) See p. 64, *Cued Articulation Consonants and Vowels*.
Spelling choices: er (germ), ir (bird), or (word), ur (hurt), ear (earn), ere (were), our (journey).

/i/ (eat) See p. 44, *Cued Articulation Consonants and Vowels*.
Spelling choices: e (she), y (jelly), ea (eat), ee (free), ei (receive), ey (key), eo (people), ie (chief), uay (quay), e e (eve), i e (police).

/u/ (ooze) See p. 60, *Cued Articulation Consonants and Vowels*.
Spelling choices: o (who), u (truth), oo (ooze), oe (shoe), ou (you), wo (two), ew (grew), ue (blue), ui (fruit), ough (through), u e (prune).

Diphthongs

Diphthongs

Diphthongs are made by gliding from one vowel position to another.
In standard English, the first element is longer and stronger than the second.

/ɛɪ/ (aim) See p. 69, *Cued Articulation Consonants and Vowels*.
Spelling choices: a (baby), ai (aim), ay (day), au (gauge), ao (gaol), ea (steak), ey (they), ei (vein), aigh (straight), eigh (eight), a e (cake).

/əʊ/ (owe) See p. 70, *Cued Articulation Consonants and Vowels*.
Spelling choices: o (so), oo (brooch), oa (boat), oe (toe), ow (snow), oh (oh), ol (folk), ou (shoulder), au (mauve), ew (sew), o e (rope), owe (owe), ough (though).

/aɪ/ (eye) See p. 71, *Cued Articulation Consonants and Vowels*.
Spelling choices: i (I), y (fly), ie (pie), is (island), ig (sign), ui (guide), uy (buy), ye (dye), eye (eye), ais (aisle), igh (light), eigh (height), i e (kite).

/aʊ/ (out) See p. 72, *Cued Articulation Consonants and Vowels*.
Spelling choices: ou (out), ow (now), ough (bough).

/ɔɪ/ (toy) See p. 73, *Cued Articulation Consonants and Vowels*.
Spelling choices: oy (toy), oi (oil), uoy (buoy).

/ɪə/ (ear) See p. 74, *Cued Articulation Consonants and Vowels*.
Spelling choices: ear (ear), eer (deer), eir (weird), ere (here), ier (fierce).

/ɛə/ (air) See p. 75, *Cued Articulation Consonants and Vowels*.
Spelling choices: aer (aeroplane), air (air), are (bare), ear (pear), eir (their), ere (there), ayer (prayer), ayor (mayor),

/ʊə/ (tour) See p. 77, *Cued Articulation Consonants and Vowels*.
Spelling choices: our (tour), ure (cure), ewer (sewer).

Using Vowel Cues

Early phonics teaching

Some children may have difficulty discriminating between the short vowel sounds /æ/ and /ɛ/; cues may help them note the difference. Similarly with the close vowels /ɪ/ and /ɛ/. Many teachers have found the short vowel cues very helpful in early phonics work.

English as a second language

There are more vowels in English than most other languages – 80% of the world's languages have only three to seven vowels (Papakyritsis & Granese, 2013); many languages have no diphthongs. Students whose first language is not English are likely not to be familiar with many of our English vowels, and they will substitute for them the vowel that is closest to it from their first language. They will require assistance with noting the contrasts between the target vowel and the vowel they are substituting for it. Cued Articulation can provide a visual, and motor, cue for these students.

Vowel disorders

Children with speech sound impairments which include vowel difficulties may have some limitation in auditory perception. Many children diagnosed with Auditory Processing Disorder demonstrate difficulty with vowels in both speech and spelling. Cued Articulation vowel cues can provide a visual cue for these children and can support intensive auditory discrimination training.

Classroom Implementation

Applying Cued Articulation to a sequenced classroom Phonological Awareness program - to a series of activities that would support a classroom literacy program based on sound principles: a structured phonics program with an emphasis on phonological awareness, and alphabetic knowledge.

Phonological Awareness develops from awareness of larger units (words, then syllables), through onset/rime awareness ('onset' is the beginning of the word, before the vowel, and 'rime' is that part of the word following the onset), then to phonemic awareness (awareness of the individual sounds in words) (Cupples, 2001; Gillon, 2004; Melby-Lervåg, Lyster, & Hulme, 2012).

Sequence of activities:

1. Syllable segmentation
2. Sound making and cueing } Suitable for pre-school
3. Sound discrimination

   Sounds in words:
4. Sounds at the front of words
   a. Matching sounds at the front of words
   b. Isolating sounds at the front of words
   c. Discriminating between sounds at the front of words
   d. Onset-Rime awareness
5. Segmenting words into all their sounds
6. Vowels
7. Consonant blends

The first three stages can be employed pre-school – activities suggested here will prepare pre-schoolers for their later literacy development. From stages 4 to 7 (sounds in words) Cued Articulation, when combined with activities used routinely in a classroom Phonological Awareness program, the sounds being targeted can be made more explicit.

1. Syllable Segmentation

Awareness of 'beats' in words – syllables: an early phonological awareness skill.
Syllable: a unit of pronunciation having one vowel sound, with or without surrounding consonants, forming the whole or a part of a word.
'Segmenting into syllables fosters the phonological skill of hearing parts of words; syllables are units that children become aware of well before they can discern phonemes' (Chapman, 2003).

2. Sound Making, Cueing and Listening

Introduce cues, with the sounds they accompany and, if appropriate, the letter for that sound. The rate at which you introduce new sounds will be determined by your school program, but, preschool, a sound a month may be a good target. In school, this may increase to a sound a week or even a sound a day!

Which Sound?

Consider:

- Manner, Place and Voicing: the Features of Sounds, which are represented in Cued Articulation.
- Normal developmental sequence of sounds.

We'll start with 'p' a sound that appears early in normal speech development and is made at the front of the mouth and can be clearly seen.

Introducing Sounds:

- Describe what the mouth is doing to produce the sound. Let the child look in a mirror to see his lips coming together and then bursting open. Encourage him to note the feel of his lips bursting open and then hear the sound coming out.
- Associate the sound (not the letter) with the appropriate colour – use balloons, streamers, coloured markers, coloured tiles, etc.
- If ready for spelling, show the child that the letter for this sound is P, and that we will put an orange line under that letter.
- Practise cues in rhymes or songs, eg 'Singing Alphabet' (Love & Reilly):

First group of Sounds:

Your first group of sounds should be sounds that differ from each other in as many ways as possible. So you should choose eg:

- A stop, e.g. 'p'
- A fricative, e.g. 's'
- A nasal, e.g. 'm'
- A vowel, e.g. 'a'
- A contrasting stop, e.g. 'k'
- A contrasting vowel, e.g. 'o'

3. Sound Discrimination

a. Discriminate between different sounding sounds

When a few cues have been introduced, use some activities to discriminate different sounding sounds (ie sounds that differ in more than one feature).

- Select one Cued Sound. Children respond when they hear that sound only, not any other (make a range of consonant sounds in front of the class - children must put up their hand, clap, etc. when they hear the specified sound).
- Four children hold coloured balloons or cards with the letter written on them; other children are asked to point to the right balloon when a sound is made, then are asked to say the sound using the cue.

b. Discriminate between similar sounding sounds

- Choose pairs of sounds where the sounds differ in only one feature such as: s- sh, s - f, etc.
  Ask children to discriminate between these sounds.
- Choose two children, each holding a balloon of the same colour. The letter for one member of the sound pair is written on one balloon – the letter for the other member of that pair on the other. The children step forward or hold up their balloon when the teacher says their sound.

- Play the Quiet Sound/Noisy Sound Game to discriminate between voiced and unvoiced consonants, but present the sound only, ie not in words. But keep this contrast till last: '… it may be important to keep voiced and voiceless consonants separate at first…. Knowing that children sometimes confuse consonants that are alike in all respects but voicing, extra time can be spent on this distinction.' (Treiman, Broderick, Tincoff, & Rodriguez, 1998). Cueing will show the difference between the voiced ('noisy) and unvoiced ('quiet') sounds.

4. Sounds at the front of words

a. Matching sounds at the front of words.

- 'Sam is happy' game
- Sound search: Put a coloured card with the sound printed on it on a table (eg an orange card with p written on it). Children find objects whose name begins with 'p' from the Lucky Dip box. Say the names of the objects taken from the box; ask the class if those objects can go on the 'p' table. Children must listen for the initial sound.
- Play the Train Game – each child is given a sound, with the letter on coloured card. They follow the driver around the classroom, and get off when the driver says a station that starts with their sound.
- Read a story to the class and practise a particular cue every time a word starts with the sound, eg practise the 's' cue in a story about Sammy Snake.

b. Isolating sounds at the front of words

Children listen for either 'p' or 'k' at the front of words: as the child pulls an object out of the box, ask the child does it begin with 'p' or 'k', cueing as you say the sound. The child responds with the sound and the cue, and places the object either in the orange 'p' bag or the brown 'k' bag. Use objects beginning only with 'p' or 'k' (some words beginning with the 'k' sound will begin with the letter C).

c. Discriminate between sounds at the front of words

- Discriminating between Different Sounding Sounds at the front of words.
- For finer discrimination between sounds, use word beginning with similar sounds. e.g. the p-b game, t-d game, ch-j game, p-t-k- game, s - sh game. Cues will provide a clue about the difference between the sounds, but remember to leave the voiced/voiceless contrast still last.

d. Onset-rime awareness

'…the onset is the initial consonant or consonant cluster present in many, but not all, English syllables; the rime is the remaining vowel and consonants' (Anthony & Francis, 2005) so that in 'cat', 'c' is the onset and 'at' is the rime. In 'spin', 'sp' is the onset and 'in' is the rime.

- Rhyming activities focussing on awareness of rhyme can lead into onset-rime awareness. Activities like the Rhyming Train Game will help.
- Rhyme appreciation precedes Rhyme generation. Now we can help children generate rhyming words – here is one suggestion: say boat and vote, and the student supplies a rhyming word. He might suggest goat. You can

actually 'cue' the student in to generate rhyming words: If you start with 'bee', you can lead him into finding rhyming words by cueing new onsets.

d. Rime awareness

Focus on the 'Rime' - the remaining part of the word with activities such as the Rime Tree Game. Use cues to focus on the onset.

5. Segmenting words into all their sounds

a. Isolating all the sounds in words – 'Elkonin box' activity.

b. Identifying a Sound at the end and middle of words:

Use cues for final and middle consonants.

- Using a "Lucky Dip", children have to identify the object or picture, then cue the final sound in the word.

6. Vowels

a. Sound only:

- Contrast different vowels a-o
- Contrast closer vowels a-e

b. Sound at the front of words:

- Contrast different vowels a-o
- Contrast closer vowels a-e

7. Consonant Blends

Cued Articulation can help children note each element of a consonant blend, both where there may be a 'hidden element' and just for awareness of the two elements of a blend.

Jane Passy on YouTube

Jane Passy can be seen making the cues on YouTube at https://www.youtube.com/watch?v=gyGX3RcLG74

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Resources

Cued Articulation Consonants & Vowels, www.stass.co.uk/publications/cued-articulation/cued-arcticulation

Cued Articulation Consonants & Vowels, Cards " "

Cued Articulation Consonants Wall Charts " "

Cued Articulation Vowel Wall Charts " "

Cued Articulation tablet App, itunes.apple.com/au/app/cued-articulation/id873057924?mt=8
play.google.com/store/apps/details?id=com.jdbtech.accer