

Frequency of Digraphs and Trigraphs in Words from a Large Vocabulary List

The data in the table below are compiled from a vocabulary list of over 17,000 words*. The figures show how many times each digraph or trigraph/quadgraph appeared in the list of words and the frequency of each phoneme represented by the digraphs.

The symbols between forward slashes / / are used in the UK Government's Letters and Sounds phonics programme. The green symbols in round brackets are used in the International Phonetic Alphabet.

Digraph or Trigraph	Phonemes and Frequency	Total Frequency of Digraph or Trigraph
er	/ur/ as in her. (ɜː) in British English (ɝ) in American English. /ə/ (ə) (schwa sound similar to 'uh') as in flower (unstressed syllables). (ə) in American English. The individual frequency of each phoneme wasn't included in the data from the large vocabulary list. However, the unstressed sound was about one and a half times more common in a sample of nearly 300 words we analysed. Other phonemes represented by 'er' are far less common. These include: /ear/ (ɪə) as in cafeteria /ar/ (ɑː) as in clerk /r/ (r) (silent e) as in every	2020+
a-e	/ai/ (eɪ) as in ate 790 /i/ (ɪ) as in village 187 /a/ (æ) as in dance 147	1124
i-e	/igh/ (aɪ) as in ice 555 /i/ (ɪ) as in give 339 /ee/ (iː) as in police 44	938
ti	/sh/ (ʃ) as in action 850 /ch/ (tʃ) as in question 13	863
ar	/ar/ (ɑː) as in arm 474 /ə/ (ə) as in dollar 168 /air/ (eə) as in vary 64	706
ou	/u/ (ʌ) as in double 366 /ow/ (aʊ) as in out 227 /oa/ (əʊ or oʊ) as in mould 29 /oo/ (uː) as in you 29	651
or	/or/ (ɔː) as in for 329 /ə/ (ə) as in labor 321 (US spelling). (/ə/ represents the 'schwa' sound - similar to 'uh')	650
le	/l/ (l) as in able 620	620



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th	/th/ (θ) as in thank 411 /th/ (ð) as in they 149	560
ch	/ch/ (tʃ) as in child 313 /k/ (k) as in chord 142 /sh/ (ʃ) as in chef 34	489
ll	/l/ (l) as in bell 489	489
ss	/s/ (s) as in pass 442 /z/ (z) as in dessert 13	455
o-e	/oa/ (əʊ or oʊ) as in home 370 /u/ (ʌ) as in come 47 /oo/ (u:) as in move 12	429
ea	/ee/ (i:) as in eat 245 /e/ (e) as in head 139 /ai/ (eɪ) as in break 14	398
sh	/sh/ (ʃ) as in shoe 398	398
ng	/ng/ (ŋ) as in sing 362	362
oo	/oo/ (u:) as in moon 197 /oo/ (ʊ) as in look 114	311
ck	/k/ (k) as in back 290	290
u-e	/oo/ (u:) or /y/ (j) + /oo/ (u:) as in tune or mule 290 (The /y/ sound isn't spoken in some accents).	290
ee	/ee/ (i:) as in keep 249	249
ow	/oa/ (əʊ or oʊ) as in own 124 /ow/ (aʊ) as in owl 119	243
ph	/f/ (f) as in phone 242	242
ur	/ur/ (ɜ: Br. or ɜ US) as in turn or /ə/ (ə) as in lemur 234. (The individual frequency of each phoneme wasn't included in the data).	234
ai	/ai/ (eɪ) as in rain 208 /i/ (ɪ) as in captain 15	223
tt	/t/ (t) as in cotton 216	216
rr	/r/ (r) as in carry 207	207
qu*	/k/ (k) + /w/ (w) as in quick and queen 191 (Arguable whether this should be classed as a digraph in this context as it represents 2 phonemes). /k/ (k) as in quiche or conquer. (No data on this but probably less common than words where qu represents 2 phonemes).	191



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ff	/f/ (f) as in cliff 177	177
pp	/p/ (p) as in happy 153	153
au	/or/ (ɔ:) as in auto 146	146
e-e	/e/ (e) as in fence 79 /ee/ (i:) as in these 62	141
kn	/n/ (n) as in knife 141	141
mm	/m/ (m) as in commute 140	140
ay	/ai/ (eɪ) as in day 131	131
en	/n/ (n) as in dozen 128	128
nn	/n/(n) as in funny 127	127
oa	/oa/ (əʊ or oʊ) as in oats 126	126
ci	/sh/ (ʃ) as in special 119	119
ie	/ee/ (i:) as in field 62 /igh/ (aɪ) as in pie 26 /u/ (ʌ) or /ʊ/ (ʊ) as in patient 22	110
ir	/ur/ (ɜ: Br. or ɜ US) as in girl 104	104
wh	/w/ (w) as in when 89 /h/ (h) as in who 7 (This number is estimated from a different source).	96
si	/zh/ (ʒ) as in erosion 55 /sh/ (ʃ) as in tension 38	93
oi	/oi/ (ɔɪ) as in oil 92	92
igh	/igh/ (aɪ) as in night 88 (most common trigraph)	88
cc	/k/ (k) as in account 76	76
aw	/or/ (ɔ:) as in awful 75	75
dd	/d/ (d) as in add 74	74
gg	/g/ (g) as in egg 67	67
bb	/b/ (b) as in rabbit 63	63
tch (trigraph)	/ch/ (tʃ) as in catch 61	61
ear (trigraph)	/ear/ (ɪə) as in hear (no data on this correspondence in the study but we estimate 20+ words) /ur/ (ɜ: Br. or ɜ US) as in Earth 29 /ar/ (ɑ:) as in heart 18 /air/ (eə) as in bear 13	60+



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ew	/oo/ (u:) or /y/ (j) + /oo/ (u:) as in blew or new 60 (The /y/ sound isn't spoken in some accents).	60
ey	/ee/ (i:) as in money 40 /ai/ (eɪ) as in they 14	54
dge (trigraph)	/j/ (dʒ) as in badge 51	51
are (trigraph)	/air/ (eə) as in care 50 /ar/ (ɑ:) as in are 1	51
oy	/oi/ (ɔɪ) as in toy 48	48
wr	/r/ (r) as in write 48	48
air (trigraph)	/air/ (eə) as in fair 46	46
ei	/ee/ (i:) as in ceiling 16 /ai/ (eɪ) as in veil 14 /i/ (ɪ) as in foreign 11	41
on	/n/ (n) as in lesson 41	41
gn	/n/ (n) as in sign 32	32
ere (trigraph)	/air/ (eə) as in there 31 /ear/ (ɪə) as in here (correspondence not included in study but we estimate around 12). /ur/ (ɜ:) (British English) (ɝ) (American English) as in were (no data for this correspondence in study but we can't think of any other common examples).	31+
our (trigraph)	/ur/ (ɜ: Br. or ɝ US) as in journey 21 /or/ (ɔ:) as in course 10 /ow/ (aʊ) + /ə/ (ə) (or (ə) US) as in flour (no data on this correspondence but quite rare).	31+
ed	/t/ (t) as in hooked 28 /d/ (d) as in tugged (No data available for this correspondence). /ə/ (ə) + /d/ (d) as in landed. (No data available for this correspondence).	28
eu	/oo/ (u:) or /y/ (j) + /oo/ (u:) as in neutral 28 (The /y/ sound isn't spoken in some accents).	28
mb	/m/ (m) as in lamb 27	27
ue	/oo/ (u:) as in blue 27	27
y-e	/igh/ (aɪ) as in type 23	23
zz	/z/ (z) as in jazz 23	23
gue (trigraph)	/g/ (g) as in league 21	21
el	/l/ (l) as in novel 19	19
gu	/g/ (g) as in guard 19	19
ps	/s/ (s) as in psychology 19	19



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que (trigraph)	/k/ (k) as in unique 19	19
eigh (quadgraph)	/ai/ (eɪ) as in weight 18 /igh/ (aɪ) as in height (No data available for this correspondence but very rare)	18+
rh	/r/(r) as in rhythm 16	16
ui	/i/ (ɪ) as in build 16	16
ough (quadgraph)	/or/ (ɔ:) as in bought 15 /ow/ (aʊ) as in drought (No data available for this correspondence but very rare) /ə/ (ə) as in thorough (No data available for this correspondence but very rare) /oa/ (əʊ or oʊ) as in dough (No data available for this correspondence but very rare) /oo/ (u:) as in through (No data available for this correspondence but very rare)	15+
gi	/j/ (dʒ) as in legion 14	14
oe	/oa/ (əʊ or oʊ) as in toe 13	13
augh (quadgraph)	/or/ (ɔ:) as in caught 12	12
bt	/t/ (t) as in doubt 11 (t)	11
eo	/u/ (ʌ) or /ə/ (ə) as in pigeon 10	10
gh	/g/ (g) as in ghost 10	10

*Fry, E. (2004) Phonics: A Large Phoneme-Grapheme Frequency Count Revised, Journal of Literacy Research, V. 36 No.1 2004 PP.85-98

