

Technical report:

Junior Language Link

The prevalence of language impairments in pupils aged between 4 -5 years is generally reported to be between 2 and 19% (Law et al, 2000). However, the prevalence of language impairments of older pupils is not well documented. For some pupils, language difficulties will only start to emerge as the demands on their language skills increase. For many pupils the gap will widen during the junior years. Hirsch (1996) compared the reading age of pupils with good oral language and those with poor oral language at 6 years and again at 14 years. At 6 years there was a small gap of a few months but by 14 years this gap had widened to a difference of 5 years in their reading ages.

As pupils move into Key Stage 2 the demands on their understanding of spoken language increase markedly. Objective assessment tools are becoming increasingly essential to support teachers to identify which pupils are at risk of language difficulties to prepare and implement suitable interventions.

Junior Language Link is an identification and intervention package devised by Speech and Language Therapists and used by mainstream schools. The online standardised assessment is used to identify developmental difficulties with understanding of language in children aged 7 – 11 years old. It is also suitable for those new to English and will identify gaps in their understanding.

The assessment will highlight any pupils who need to be seen by Speech and Language Therapists. The package suggests interventions at a universal and targeted approach, through use of classroom strategies, planned language groups and 1:1 activities. The website provides information on a wide variety of speech and language issues with advice on how best to develop language skills to support literacy and boost attainment.

The Junior Language Link Assessment

The Junior Language Link assessment is delivered online. It consists of 70 items presented across 7 subtests: Concepts, Verb Tenses, Negatives, Complex Sentences, Narrative Inferences, Figurative Language and Association. Pupils are presented with a choice of 3 or 4 pictures and a recorded verbal prompt. The distracter pictures vary in syntactic or semantic elements. The test takes about 25 minutes to administer.

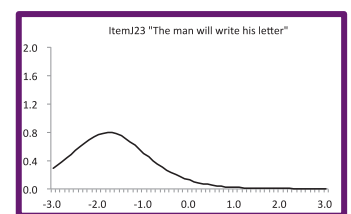
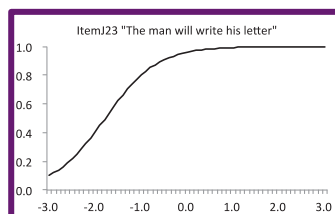
Scores are reported as a total score and sections scores. Standard scores and percentile ranks are presented for the total score. Students are flagged for support at different levels. The assessment is used as a universal screen in year 3 and then to track any identified pupils through to year 6.

Sub-test	Description
Concepts	Tests the understanding of simple concept vocabulary
Verb Tenses	Tests the understanding of irregular past, present and future verb forms
Negatives	Tests the understanding of complex negative forms
Complex Sentences	Tests the understanding of complex grammatical structures
Narrative Inferences	Tests the ability to make inferences from an oral story
Figurative Language	Tests the understanding of idiomatic language
Association	Tests the ability to make links between vocabulary items

Selection of test items

Content validity was established by an expert panel. All pictures and probes were reviewed by the panel for suitability and relevance. The probes were tested through a number of small pilot projects during 2010 - 2011. Data from 329 children aged between 7 and 11 years were analysed before the final version of the Junior Language Link assessment proceeded to the standardisation study phase.

Selection of the final items was based on a number of criteria: the pass rate, the bi-serial correlation coefficient, the item response function, the item information function, the item category response line, the correlation between the item and the total test score, the discrimination parameter, the difficulty parameter and feedback from testers.

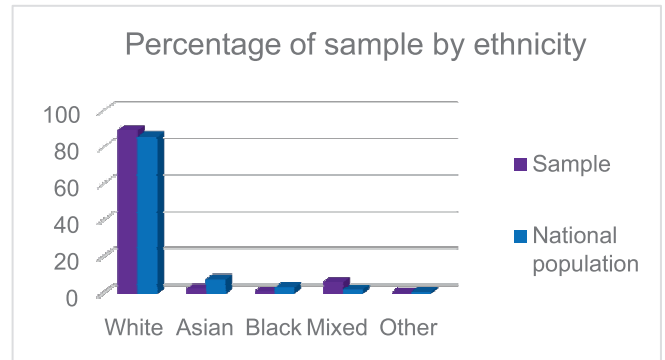
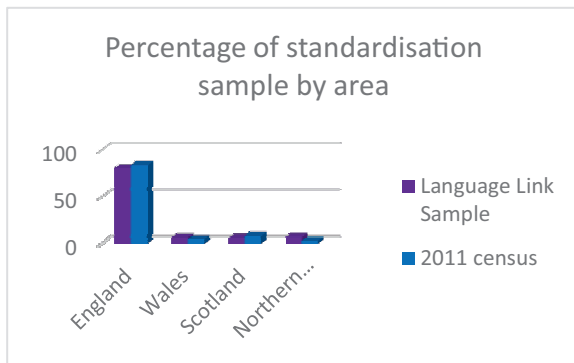


Example Item Response Function and Information Function graphs



Standardisation study

In total **1198** pupils from 46 schools made up the standardisation sample. The pupils were aged between 7:0 and 11:06 years. 51.2% were male and 48.8% were female.



Reliability

To observe internal consistency for raw score calibration, *Cronbach's alpha* was calculated for the Junior Language Link test as 0.905, indicating a high consistency within the test.

To establish test-retest reliability all schools within the standardisation sample were asked to retest a small number of pupils. In total 174 pupils from 30 schools completed initial test and retests. Pearson correlations between the raw score achieved on the first test and the retest were high across all age bands (0.95- 0.70) indicating good test retest reliability.

Age Band	Initial Mean (SD)	Retest Mean (SD)	Pearson's R
7:00 - 7:11	55.9 (12.05)	62.2 (8.14)	0.95
8:00 - 8:11	57.2 (9.94)	62.3 (7.40)	0.88
9:00 - 9:11	62.2 (6.87)	66.3 (5.61)	0.70
10:00 - 10:11	63.4 (7.72)	66.9 (6.55)	0.87
11+	62.2 (8.17)	66.7 (6.15)	0.90
All ages	61.4 (8.51)	65.7 (6.63)	0.85

Validity

Concurrent validity was investigated by comparing scores on Junior Language Link with their scores on subtests from widely used standardised language assessments. In total 160 pupils from 6 schools were involved in the concurrent validity study. The correlation coefficients indicate that the Junior Language Link assessment provides sufficient convergent and discriminant validity. (CELF C&I 0.756, TROG 0.612).

Age Band	CELF 4 UK C&I Scaled score (SD)	ACE IC Scaled score (SD)	ACE NLC Scaled score (SD)	ACE SD Scaled score (SD)	TROG Scaled score (SD)	Infant Language Link Raw score (SD)
7:00 - 7:11	10.7 (3.20)	10.9 (2.58)	10.6 (1.98)	9.3 (2.26)	101.8 (16.31)	57.7 (10.07)
8:00 - 8:11	10.5 (2.98)	10.4 (2.77)	10.2 (2.94)	9.4 (2.75)	99.9 (13.25)	61.5 (7.57)
9:00 - 9:11	7.6 (3.27)	9.6 (3.27)	9.6 (2.83)	9.4 (2.96)	98.5 (13.12)	60.9 (10.37)
10:00 - 10:11	9.2 (3.55)	11.1 (3.46)	10.1 (2.65)	7.8 (2.14)	92.8 (17.96)	64.2 (5.51)
11:00 +	9.8 (3.30)	11.3 (3.34)	10.0 (3.00)	8.1 (2.28)	96.4 (12.38)	65.1 (4.38)
All ages	9.4 (3.43)	10.6 (3.17)	10.1 (2.67)	8.7 (2.55)	97.6 (15.02)	61.9 (8.28)
Correlation with Junior Language Link	0.760	0.543	0.699	0.599	0.609	N/A

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