Supplementary material.

As we administered the task with three scales on four separate occasions, we were able to investigate the stability / consistency in performance longitudinally. These data offer the first assessment that we are aware of, relating to the reliability of number estimation measures. This is important in part because it potentially provides an upper bound on the ability of number line estimation variables to correlate with others (via attenuation, for example). The data also address consistency across different number scales, which can help illuminate issues of process overlap. We use the error measure from the main section as an exemplar (the inter- correlations across scales and time points are shown in the table below).

Thus, with both the 0-10 and 0-100 scales, children's estimations at each time point correlated with all three other time points. Performance on the 0-20 scale was less stable, yet there was still a correlation between Time 1 and 2, and Time 3 and 4. In contrast, only 6 of the 12 correlations between scales at any particular time point were significant. In other words, accuracy for a given scale was often correlated across a full school year even when it failed to correlate with a neighbouring scale administered at the same time. This leads us to believe that there were coherent scale-dependent processes operating over an extended period, but that different ranges elicited potentially different representations.

Correlation matrix for error rates on all three number line scales (10, 20,100) at all four time points (T1 – T4).

	T1-10	T2-10	T3-10	T4-10	T1-20	T2-20	T3-20	T4-20	T1-100	T2-100	T3-100	T4-100
T1-10	1	.479*	.263*	.462*	.020	.105	-.002	.126	-.107	-.036	-.131	-.101
T2-10		1	.428*	.440*	.207+	.409*	.101	.074	.083	-.100	-.047	-.239+
T3-10			1	.496*	.050	.046	.261*	. 169	.246+	-.032	-.048	.034
T4-10				1	-.139	.014	.190	. 263*	.070	-.056	-.065	-.010
T1-20					1	.421*	.109	. 173	.300*	.385*	.250+	.211+
T2-20						1	.164	. 054	.158	.138	-.066	-.122
T3-20							1	. 436*	.147	.102	.238+	.159
T4-20								1	.208+	.069	.086	.463*
T1-100									1	.559*	.346*	.412*
T2-100										1	.432*	.572*
T3-100											1	.369*

Note. + = p<.05; * = p<.01