The study sought to investigate how pre-school teachers and their pupils interact during instruction in numeracy lessons in Nigeria. The sample consisted of 2859 pupils from 72 pre-primary institutions/classrooms (selected through stratified random sampling to ensure adequate representation of private, public, urban and rural schools). The collection of data involved using two observational instruments (Classroom Interaction Sheet, CIS and Ten-Minute Interaction Instrument, TMI) to record interaction patterns in 72 lessons during the teaching of numeracy. Data analysis involved the use of frequency, percentages, chi-square and graphical illustrations. The result revealed that the major language of instruction was English language rather than the language of the pupils’ immediate community; the use of instructional time and direction of interaction tend to be sensitive to language of instruction; teacher-initiated interactions and whole class activities are associated more with the use of English as language of instruction while learner-initiated interactions and individual/small group activities are associated more with use of language of the pupils’ immediate community in instructional delivery; and the direction of communication was mainly from the teacher to the whole class.