Formulas for Common Speech-Language Measures

General Data Collection

Chronological Age: Subtract the student's age in years, months, and days from the current date or test date. Subtract in order of days, months, years. When borrowing to increase days, add 30 to days and subtract 1 from months. When borrowing to increase months, add 12 to months and subtract 1 from years.

Formula: Current Date (*YYYY/MM/DD) - Birth Date (YYYY/MM/DD) = Chronological Age.*

Percent Occurrence or Percent Correct: Divide number of correct or target responses by the total number of trials or opportunities to respond

Formula: # Correct ÷ # Opportunities = Percent (Correct)

Rate: Divide number of responses by the amount of time in sample. Calculate fractions of minutes by dividing # seconds lapsed by 60 seconds. Calculate fractions of hours by dividing number of minutes by 60 minutes. Example: 25 seconds/60 seconds = .42 minutes

Formula: # Responses ÷Units of Time = Rate

Articulation & Intelligibility

Intelligibility: Divide the number of fully understood (intelligible) words by the total number of utterances, including those words or syllables that were not understood, then multiply by 100. (Hodson, 2011).

Formula: *Intelligible words ÷ total utterances x 100 = % intelligibility*

Percent Consonants Correct (PCC): Divide number of consonant production errors (substitution, omission, distortion) by the total number of possible consonants in a sample. Multiply by 100. (Shriberg & Kwiatkowski, 1985)

Formula: # Correct Consonants ÷ # Total Consonants × 100 = Percent Consonants Correct

Language

Clausal Density: Divide the number of clauses by the total number of complete sentences (T-units or C-units).

Formula: # clauses ÷ # T-units or C-units = Clausal Density

Mean Length of Utterance (words or morphemes): Divide the number of words or morphemes by the total number of utterances

Formula: # Words or Morphemes ÷ # Utterances = MLU

Type Token Ratio (TTR): Divide number of different words by total number of words in sample. Result will be between 0 & 1.

Formula: # Different Words ÷ # Total Words = Type Token Ratio