The Bayley Scales of Infant and Toddler Development, 3rd Edition, Summary

The Bayley Scales of Infant and Toddler Development, Third Edition (Bayley-3) is a brief, individually administered measure of young children's developmental status and includes cognitive, language and motor development.

Equipment Used (for children between 9 months, 0 days to 16 months, 15 days of age)**:**

>   Administration and scoring protocol (hard copy or computer assisted)
>   Stimulus Book
>   Squeeze toy
>   Bell
>   Blocks (without holes)
>   Washcloth
>   Ring with string
>   Picture Book
>   Cup
>   Pegboard
>   Glitter bracelet
>   Small bottle
>   Car (miniature)
>   Rattle
>   Clear box
>   Spoons (2)
>   Small ball
>   Facial tissue
>   Cheerio
>   Plain paper
>   Pencils
>   Crayons
>   Stopwatch

Administration Time:
>   35–45 minutes

Administration Method:
The Bayley-3 is an individually administered examination that assesses the current developmental functioning of infants and children from 1 month to 42 months. In total, the Bayley-3 is composed of three scales that are administered directly to the child (plus two supplemental scales that are completed by the parent). These three scales are the Cognitive Scale, the Language Scale (which includes a receptive subscale and an expressive subscale), and the Motor Scale (which includes a fine motor skills subscale and a gross motor skills subscale). There are 91 items in the entire Cognitive Scale. There are 97 items in total in the Language Scale (49 in the receptive subscale and 48 in the expressive subscale). There are 138 items in total in the Motor Scale (66 in the fine motor subscale and 72 in the gross motor subscale). Items are arranged in order of increasing difficulty and are administered in age sets so that each child receives only a small subset of items. The exact number of items in each scale to be administered depends also on the child's performance. The instrument is designed so that the vast majority of children will need to be administered only those items from the child's age set. However, if the child's performance is poor, the next younger age set of items is administered sequentially until the child receives "credit" for three in a row and then items are administered in order until the child receives "no credit" for

5 items in a row; if the child's performance is unusually good, the next older age set of items is administered until the child receives "no credit" for 5 items in a row.

For children between 11 months, 0 days and 13 months, 15 days, it is estimated that an average of 9 items would be administered from the Cognitive Scale, depending on the child's performance. If the child's scores are unusually low, an additional 3 items could be required to achieve the basal rule (to get a good read of how low the child performs); if the child's scores are unusually high, an additional 5 items could be required to achieve the ceiling rule (to get a good read of how high the child performs).

Administration Procedures:
Basal Starting Points and End Points
Each child is asked only a subset of the total complement of questions in each scale. Questions within each scale are ordered by difficulty and are arranged into age sets of items. The starting point for asking questions is determined by the child's age. If the child's responses to the first three questions in that child's age set of items are correct, item administration proceeds in order until the child receives "no credit" for 5 items in a row. If any one of the child's responses to the first three questions in that child's age set of items is incorrect, the assessor then reverses to the first item in the next younger age set. If all 3 of the first three items in the younger age set are correct, item administration proceeds forward until the child receives "no credit" for 5 items in a row. However, if any one of the child's responses to the first three items in this younger age set is "no credit," then the assessor must reverse yet again and go to the next younger age set, and so on, until the first three items in an age set are correct. The Bayley-3 is constructed so that the vast majority of children will reach their lower and upper limits within their age set of items.

Scales:
Cognitive Scale
The Cognitive Scale includes items that assess sensorimotor development, exploration and manipulation, object relatedness, concept formation, memory, and other aspects of cognitive processing. The Bayley-3 also highlights the role of play in cognitive development because play in early childhood is believed to promote cognitive growth by fostering the child's ability to understand and develop symbols, while social pretend play correlates with cognitive ability. The Cognitive Scale also includes items that assess information-processing types of skills, including novelty preference, habituation and paired comparisons, memory, reaction time, and problem-solving. Also included in the Cognitive Scale are items that measure children's number concepts and counting, for example, one-to-one correspondence, counting and ability to understand and use cardinality.

Language Scale
The Language Scale assesses both the receptive and expressive language abilities of children. Receptive language and expressive language require different abilities and can develop independently, or the child can be more advanced in one area than the other. The Language Scale begins with the Receptive Communication subscale, which includes items that assess auditory acuity, including the ability to respond to the sound of a person's voice, to respond to and discriminate between sounds in the environment, and to localize sound. Other items focus on the child's ability to understand and (behaviorally) respond appropriately to words and requests. The Expressive Communication subscale includes items that assess the infant's ability to vocalize, for example cooing in the 2nd month. Babbling begins around 3 and 4 months of age and begins to resemble human speech as the child matures. Speech begins a few months after the child begins to show comprehension, with the first words appearing around 1 year of age. Between 12 months and 24 months, there is an explosion in the number of words a child can use and understand. In addition, children's uses of gestures, a form of symbolic representation, is also assessed in the Language Scale, for example, waving "bye-bye" or lip-smacking to indicate that something tastes good.

Motor Scale

The Fine Motor and Gross Motor subscales include items that measure quality of movement, sensory integration, and perceptual-motor integration, as well as basic milestones of prehension and locomotorn. Some motor skills, such as reaching and grasping, show up first as gross, diffuse activities that shift to more controlled movements with increasing age and developmental maturity.

Fine motor skills associated with prehension, perceptual-motor integration, motor planning, and motor speed are included in the Fine Motor subscale. Skills measured include visual tracking, reaching, object manipulation, and grasping. Children's functional hand skills in response to tactile information are also measured. The Fine Motor items assess the coordination and control of eye movements (in the youngest months), reaching and grasping for objects, and the modification of hand grasp from whole hand grasping to partial thumb opposition, to pincer grasp, as well as transferring objects from one hand to the other.

The Gross Motor subscale primarily measures the movement of the limbs and torso. Items assess static (i.e., stationary) positioning, such as sitting, and standing; dynamic movement, including locomotion and coordination; balance, both stationary balance (e.g., standing still on 1 foot) and moving balance (e.g., swinging the leg to kick a ball, hopping on 1 foot, tiptoeing); and motor planning.

Scoring

The assessor records scores item by item and keeps track of the running totals in order to determine whether basal items or ceiling items need to be administered. The Bayley-3 provides four types of norm-referenced scores: scaled scores, composite scores, percentile ranks, and growth scores (useful for longitudinal analyses). In addition, confidence intervals are available for the scales and developmental age equivalents are available for the subtests (e.g., Receptive Communication, Expressive Communication).

Risks and Protections Against Risks

This instrument involves minimal risk. The examination is comparable to what a child would experience in the course of routine educational testing. Because basal starting points are identified both by age and initial responses, and the subtests are discontinued after five consecutive incorrect responses, children's frustration and fatigue are minimized.