Chapter 4 Class Notes

Infancy

I. The Newborn (Birth to One Month)
   a. Within moments of birth, the newborn begins to adapt to an outside world that is radically different from the one experienced in utero
      i. All body systems are in place and ready to function at birth
         1. Newborn’s body immediately assumes responsibility for:
            a. Breathing
            b. Eating
            c. Elimination
            d. Regulation of body temperature
         2. Body systems are still immature, making the newborn completely dependent on adults for survival
      ii. Motor development is both reflexive and protective
          1. No voluntary control of the body during the early weeks
      iii. Newborn babies sleep most of the time, but they do not lack awareness
          1. Sensitive to their environment and have unique methods of responding to it
          2. Crying is the primary method for communicating needs and emotions
          3. Perceptual and cognitive abilities are present, but they are primitive and relatively difficult to distinguish from one another during the initial weeks following birth
   b. Growth and physical characteristics
      i. Newborn’s physical characteristics are unique from those of a slightly older infant
         1. Skin may appear wrinkled at birth
            a. Will dry out in the first few days and may begin to peel in some areas
         2. Skin color of all babies is relatively light, but will gradually darken to a shade characteristic of their genetic background
         3. Head may assume an unusual shape as the result of the birth process
            a. Begins to assume a relatively normal shape within the first week
         4. Hair color and amount vary
      ii. Physical characteristics of newborns
         1. Weight at birth averages 6.5 to 9 pounds (3.0–4.1 kg)
            a. Females weigh approximately 7 pounds (3.2 kg)
            b. Males weigh approximately 7.5 pounds (3.4 kg)
         2. 5 to 7 percent of birth weight is lost in the days immediately following birth
3. Gains an average of 5 to 6 ounces (0.14–0.17 kg) per week during the first month
4. Length at birth ranges between 18 and 21 inches (45.7–53.3 cm)
5. Respiration rate is approximately thirty to fifty breaths per minute; breathing may be somewhat irregular in rhythm and rate
6. Chest appears small and cylindrical
   a. Nearly the same size as the head.
7. Normal body temperature ranges from 96°F to 99°F (35.6°C–37.2°C)
8. Body temperature is irregular during the first few weeks due to immature body systems and a thin fat layer beneath the skin
9. Skin is sensitive, especially on the hands and mouth
10. Head is large in relation to body; accounts for nearly one-fourth of the total body length
11. Head circumference averages 12.5 to 14.5 inches (31.7–36.8 cm) at birth
12. “Soft” spots (fontanels) are located on the top (anterior) and back (posterior) of the head
13. Tongue appears large in proportion to mouth
14. Cries without tears
15. Eyes are extremely sensitive to light
16. Sees outlines and shapes; unable to focus on distant objects

c. Motor development
   i. Newborn’s motor skills are purely reflexive movements that are designed primarily for protection and survival
      1. During the first month, the infant gains some control over several of these early reflexes
      2. Gradually, many of these reflexes disappear as the infant’s central nervous system matures and begins to take over control of purposeful behavior
      3. Failure of reflexes to disappear according to schedule can be an early indicator of possible neurological problems
   ii. During the first month the infant:
      1. Engages in motor activity that is primarily reflexive:
         a. Swallowing, sucking, gagging, coughing, yawning, blinking, and elimination reflexes are present at birth
         b. Rooting reflex is triggered by gently touching the sensitive skin around the cheek and mouth
            i. Infant turns toward the cheek being stroked
c. Moro (startle) reflex is set off by a sudden loud noise or touch, such as bumping of the crib or quick lowering of the infant’s position downward (as if dropping)
   i. Both arms are thrown open and away from the body, then quickly brought back together over the chest

d. Grasping reflex occurs when the infant tightly curls its fingers around an object placed in its hand

e. Stepping reflex involves the infant moving the feet up and down in walking-like movements when held upright with feet touching a firm surface

f. Tonic neck reflex (TNR) occurs when the infant, in supine (face up) position, extends arm and leg on the same side toward which the head is turned
   i. Opposite arm and leg are flexed (pulled in toward the body)
   ii. Sometimes called the “fencing position”

g. Plantar reflex is initiated when pressure is placed against the ball of the infant’s foot, causing the toes to curl

2. Maintains “fetal” position (back flexed or rounded, extremities held close to the body, knees drawn up), especially when asleep

3. Holds hands in a fist; does not reach for objects

4. When held in a prone (face down) position, baby’s head falls lower than the horizontal line of the body with hips flexed and arms and legs hanging down

5. Has good muscle tone in the upper body when supported under the arms

6. Turns head from side to side when placed in a prone position

7. Pupils dilate (enlarge) and constrict (become smaller) in response to light

8. Eyes do not always work together and may appear crossed at times

9. Attempts to track (follow) objects that are out of direct line of vision; unable to coordinate eye and hand movements

d. Perceptual-cognitive development
   i. Newborn’s perceptual-cognitive skills are designed to capture and hold the attention of family and caregivers and to gain some sense of the environment

   1. Hearing is the most well developed of the skills
      a. Newborns can hear and respond to differences among certain sounds and are especially responsive to their mother’s voice
b. Sounds and movements, such as cooing, rocking, and jiggling, are often soothing

2. Newborns also are responsive to touch, with skin around the mouth and hands being especially sensitive

3. Vision is present, although limited
   a. Especially attracted to highly contrasting (black/white) geometric designs
   b. Can focus both eyes, see objects up close, and follow slowly moving objects

ii. From the earliest days of life, newborns absorb information through all of their senses, learning from what they see, hear, touch, taste, and smell
   1. Newborn’s cognitive behaviors can be characterized as purely reflexive
      a. Take the form of:
         i. Sucking
         ii. Startle responses
         iii. Grimacing
         iv. Flailing of arms and legs
         v. Uncontrolled eye movements
   b. All overlap with perceptual responses

iii. During the first month the infant:
   1. Blinks eyes in response to a fast-approaching object
   2. Follows a slowly moving object through a complete 180-degree arc
   3. Follows objects moved vertically if object is close to infant’s face (10–15 inches [25.4–38.1 cm])
   4. Continues looking about, even in the dark
   5. Begins to study own hand when lying in TNR position
   6. Hears as well (with the exception of quiet sounds) at birth as do most adults; hearing is more acute than vision
   7. Prefers to listen to mother’s voice rather than a stranger’s; opens eyes and looks toward mother
   8. Often synchronizes body movements to speech patterns of parent or caregiver
   9. Distinguishes some tastes; shows preference for sweet liquids
   10. Has a keen sense of smell present at birth
       a. Turns toward preferred (sweet) odors, away from strong or unpleasant odors

e. Speech and language development
   i. Beginnings of speech and language development can be identified in several of the newborn’s reflexes, including:
      1. Bite-release action that occurs when the infant’s gums are rubbed
      2. Rooting reflex
3. Sucking reflex
   ii. New baby communicates directly and indirectly in a number of other ways:
      1. Crying and fussing are major forms of communication at this stage
      2. Reacts to loud noises by blinking, moving, stopping a movement, shifting eyes about, or making a startle response
      3. Shows a preference for certain sounds, such as music and human voices, by calming down or quieting
      4. Turns head in an effort to locate voices and other sounds
      5. Makes occasional sounds other than crying

f. Social-emotional development
   i. Newborns possess a variety of built-in social skills
      1. Indicate needs and distress and respond to parents' or caregivers' reactions
      2. Infant thrives on feelings of security and soon displays a sense of attachment to primary caregivers
   ii. The newborn:
      1. Experiences a brief period of calm alertness immediately following birth
         a. Gazes at parents and listens to their voices
      2. Sleeps seventeen to nineteen hours per day
         a. Is gradually awake and responsive for longer periods
      3. Likes to be held close and cuddled when awake
         a. Opens eyes and looks toward mother
      4. Shows qualities of individuality
         a. Each infant varies in ways of responding or not responding to similar situations
      5. Begins to establish an emotional attachment or a bonding relationship with parents and caregivers
         a. Opens eyes
         b. Relaxes body tension
      6. Develops a gradual sense of security or trust with parents and caregivers
         a. Is able to sense caregiver differences and responds accordingly

   g. Daily routines
   i. Eating
      1. Takes six to ten feedings, totaling approximately 22 ounces (660 ml) per 24 hours at the beginning of this period
         a. Later, the number of feedings will decrease to five or six as the amount consumed increases
      2. Drinks 2 to 4 ounces of breast milk or formula per feeding
a. Takes 25 to 30 minutes to complete a feeding
b. May fall asleep toward the end
3. Expresses the need for food by crying
4. Benefits from being fed in an upright position
   a. Reduces the risk of choking and of developing ear infections
ii. Toileting, bathing, and dressing
   1. Signals the need for a diaper change by crying (if crying does not stop when diaper has been changed, another cause should be sought)
   2. Enjoys bath
      a. Keeps eyes open, coos, and relaxes body tension when placed in warm water
   3. Expresses displeasure when clothes are pulled over head (best to avoid over-the-head clothes)
   4. Prefers to be wrapped firmly (swaddled) in a blanket
      a. Coos, stops crying, and relaxes muscles
      b. Swaddling seems to foster a sense of security and comfort
   5. May have one to four bowel movements per day
iii. Sleeping
   1. Begins to sleep four to six periods per 24 hours after the first few days following birth
      a. One of these may be five to seven hours in length
   2. Cries sometimes before falling asleep (usually stops if held and rocked briefly)
   3. Placing baby on his or her back only and on a firm mattress to sleep reduces the risk of sudden infant death syndrome (SIDS)
      a. Also remove all pillows, fluffy blankets and bumper pads and toys from crib or sleeping area
      b. Dress infant lightly to avoid overheating
iv. Play and social activities
   1. Prefers light and brightness
      a. May fuss if turned away from the light
   2. Stares at faces in close visual range (10–12 inches [25.4–30.5 cm])
   3. Signals the need for social stimulation by crying
      a. Stops when picked up or put in infant seat close to voices and movement
   4. Is content to lie on back much of the time
   5. Needs to be forewarned (e.g., touched, talked to) before being picked up
   6. Enjoys lots of touching and holding
      a. May become fussy with over-stimulation
   7. Enjoys “en face” (face-to-face) position
h. Developmental alerts
   i. Check with a health care provider or early childhood specialist if, by one month of age, the infant does not:
      1. Show alarm or “startle” responses to loud noise
      2. Suck and swallow with ease
      3. Show gains in height, weight, and head circumference
      4. Grasp with equal strength with both hands
      5. Make eye-to-eye contact when awake and being held
      6. Roll head from side to side when placed on stomach
      7. Express needs and emotions with distinctive cries and patterns of vocalizations that can be distinguished from one another
      8. Usually stops crying or become soothed (relaxed) when picked up and held

i. Safety concerns
   i. Be sure to complete first aid and cardiopulmonary resuscitation (CPR) before the baby arrives
   ii. Always be aware of new safety issues as the baby continues to grow and develop:
      1. Burns
         a. Never heat baby bottles in a microwave oven; hot spots can form and burn the baby’s mouth
         b. Set temperature of hot water heater so that it is no higher than 120°F
         c. Always check temperature of water before bathing baby
      2. Choking
         a. Learn CPR
         b. Always hold infant in an upright position while feeding; do not prop bottles
      3. Suffocation
         a. Provide a firm mattress that fits crib snugly to prevent infant from becoming wedged in open cracks
         b. Always put infants to sleep on their back
            i. Reduces the risk of sudden infant death syndrome (SIDS)
            ii. Tuck bottom edges of a light blanket under bottom end of the mattress
         c. Remove all soft items, such as fluffy blankets, bumper pads, stuffed animals, or pillows, from the baby’s crib
         d. Install smoke and carbon monoxide detectors near the baby’s room
      4. Transportation
a. Always use an approved, rear-facing carrier when transporting the baby in a vehicle
   i. Check for proper installation

II. One to Four Months
a. Growth proceeds at a rapid pace
   i. Body systems are fairly well stabilized, with temperature, breathing patterns, and heart rate becoming more regular
   ii. Motor skills improve as strength and voluntary muscle control increase
   iii. Longer periods of wakefulness encourage the infant’s social-emotional development
   iv. Social responsiveness begins to appear as infants practice and enjoy using their eyes to explore the environment
      1. As social awareness develops, the infant gradually establishes a sense of trust and emotional attachment to parents and caregivers
      2. Crying remains a primary way of communicating and of gaining adult attention, but more complex communication skills are beginning to emerge
      3. Infants soon find great pleasure in imitating the speech sounds and gestures of others
      4. Cooing often begins around 2 months of age and represents an important step in the acquisition of language and give-and-take interaction with others
   v. Learning takes place continuously throughout the infant’s waking hours as newly acquired skills are used for exploring and gathering information about a still new and unfamiliar environment
      1. Differences in cultural expectations and environmental conditions may influence the rate and acquisition of these skills
      2. Critical brain development is fostered by providing the baby with numerous opportunities for learning
         a. Important to note once again that perceptual, cognitive, and motor development are closely interrelated and nearly impossible to differentiate during these early months
b. Growth and physical characteristics
   i. Averages 20 to 27 inches (50.8–68.6 cm) in length
      1. Grows approximately one inch (2.54 cm) per month (measured with infant lying on back, from top of the head to bottom of heel, knees straight and foot flexed)
   ii. Weighs an average of 8 to 16 pounds (3.6–7.3 kg)
      1. Females weigh slightly less than males
   iii. Gains approximately 1/4 to 1/2 pound (0.11–0.22 kg) per week
iv. Breathes at a rate of approximately thirty to forty breaths per minute
   1. Rate increases significantly during periods of crying or activity
v. Normal body temperature ranges from 96.4°F to 99.6°F
   (35.7°C–37.5°C)
vi. Head and chest circumference are nearly equal
vii. Head circumference increases approximately 3/4 inch (1.9 cm)
     per month until two months, then increases 5/8 inch (1.6 cm)
     per month until four months
     1. Increases are an important indication of continued brain growth
viii. Continues to breathe using abdominal muscles
ix. Posterior fontanel closes by the second month
    1. Anterior fontanel closes to approximately 1/2 inch (1.3 cm)
x. Skin remains sensitive and easily irritated
xi. Arms and legs are of equal length, size, and shape
    1. Easily flexed and extended
xii. Legs may appear slightly bowed
xiii. Feet appear flat with no arch
xiv. Cries with tears
xv. Begins moving eyes together in unison (binocular vision)
xvi. Detects color (color vision is now present)
c. Motor development
   i. Reflexive motor behaviors are changing:
      1. Tonic neck and stepping reflexes disappear
      2. Rooting and sucking reflexes are well developed
      3. Swallowing reflex and tongue movements are still immature
         a. Continues to drool
         b. Is not able to move food (other than milk) to the back of the mouth
      4. Grasp reflex gradually disappears
      5. Landau reflex appears near the middle of this period
         a. When baby is held in a prone (face down) position, the head is held upright and legs are fully extended
   ii. Grabs onto objects using entire hand (palmar grasp)
      1. Strength is insufficient to hold onto items at the beginning of this period
   iii. Holds hands in an open or semi-open position much of the time
   iv. Muscle tone and development are equal for boys and girls
   v. Movements tend to be large and jerky, gradually becoming smoother and more purposeful as muscle strength and control improve
vi. Raises head and upper body on arms when in a prone position
vii. Turns head side to side when in a supine (face up) position
   1. Near the end of this period can hold head up and in line with the body
viii. Shows greater activity level in upper body parts:
   1. Clasps hands above face, waves arms about, reaches for objects
ix. Begins rolling from front to back by turning head to one side and allowing trunk to follow
   1. Near the end of this period, infant can roll from front to back to side at will
x. Can be pulled to a sitting position, with considerable head lag and rounded back at the beginning of this period
   1. Later, can be positioned to sit with minimal head support
   2. By four months, most infants can sit with support, holding their head steady and keeping back fairly erect
      a. Enjoys sitting in an infant seat or being held on an adult’s lap
d. Perceptual-cognitive development
   i. Fixates on a moving object held at a distance of 12 inches (30.5 cm)
      1. Smoother visual tracking of objects across 180-degree pathway, vertically and horizontally
   ii. Continues to gaze in direction of moving objects that have disappeared
   iii. Exhibits some sense of size, color, and shape recognition of objects in the immediate environment
   iv. Ignores (does not search for) a bottle that falls out of a crib or a toy hidden under a blanket:
      1. “Out of sight, out of mind”
      2. Infant has not yet developed what Piaget refers to as object permanence
   v. Watches hands intently
   vi. Moves eyes from one object to another
   vii. Focuses on small object and reaches for it
       1. Usually follows own hand movements
   viii. Alternates looking at an object, at one or both hands, and then back at the object
   ix. Imitates gestures that are modeled: bye-bye, patting head
   x. Hits at object closest to right or left hand with some degree of accuracy
   xi. Looks in the direction of a sound source (sound localization)
   xii. Connects sound and rhythms with movement by moving or jiggling in time to music, singing, or chanting
   xiii. Distinguishes parent’s face from stranger’s face when other cues, such as voice, touch, or smell, are also available
xiv. Attempts to keep toy in motion by repeating arm or leg movements that started the toy moving in the first place

xv. Begins to mouth objects

e. Speech and language development
   i. Reacts (stops whimpering, startles) to sounds, such as a voice, rattle, or doorbell
      1. Later, will search for source by turning head and looking in the direction of sound
   ii. Coordinates vocalizing, looking, and body movements in face-to-face exchanges with parent or caregiver
      1. Can follow and lead in keeping communication going
   iii. Babbles or coos when spoken to or smiled at
      1. Even babies who are deaf will begin to babble
   iv. Coos using single vowel sounds (ah, eh, uh)
      1. Also imitates their own sounds and vowel sounds produced by others
   v. Laughs out loud

f. Social-emotional development
   i. Imitates, maintains, terminates, and avoids interactions
      1. For example, infants can turn at will toward or away from a person or situation
   ii. Reacts differently to variations in adult voices
      1. For example, may frown or look anxious if voices are loud, angry, or unfamiliar
   iii. Enjoys being held and cuddled at times other than feeding and bedtime
   iv. Coos, gurgles, and squeals when awake
   v. Smiles in response to a friendly face or voice
      1. Smiles occurring during sleep are thought to be reflexive
   vi. Entertains self for brief periods by playing with fingers, hands, and toes
   vii. Enjoys familiar routines, such as being bathed and having diaper changed
   viii. Delights (squeals, laughs) in play that involves gentle tickling, laughing, and jiggling
   ix. Spends much less time crying
   x. Recognizes and reaches out to familiar faces and objects, such as father or bottle
      1. Reacts by waving arms and squealing with excitement
   xi. Stops crying when parent or caregiver comes near

g. Daily routines
   i. Eating
      1. Takes five to eight feedings (5 to 6 ounces each) per day
      2. Begins fussing before anticipated feeding times
         a. Does not always cry to signal the need to eat
      3. Needs only a little assistance in getting nipple to mouth
a. May begin to help caregiver by using own hands to guide nipple
4. Sucks vigorously; may choke on occasion because of the vigor and enthusiasm of sucking
5. Becomes impatient if bottle or breast continues to be offered once hunger is satisfied
6. Requires only breast milk or formula to meet all nutrient needs; not ready to eat solid foods

ii. Toileting, bathing, and dressing
1. Enjoys bathtime on most occasions
   a. Kicks, laughs, and splashes
2. Has one or two bowel movements per day
   a. May skip a day
3. Begins to establish a regular time or pattern for bowel movements

iii. Sleeping
1. Falls asleep for the night soon after the evening feeding
2. Begins to sleep through the night
   a. Many babies do not sleep more than six hours at a stretch for several more months
3. Averages fourteen to seventeen hours of sleep per day; often awake for two or three periods during the daytime
4. Sometimes begins thumbsucking during this period
5. Begins to entertain self before falling asleep
   a. “Talks,” plays with hands, jiggles crib

iv. Play and social activity
1. Spends waking periods engaged in physical activity
   a. Kicking, turning head from side to side, clasping hands together, grasping objects
2. Vocalizes with delight
   a. Becoming more “talkative”
3. Smiles and coos when being talked and sung to
   a. May cry when the social interaction ends
4. Appears happy when awake and alone (for short periods of time)

h. Developmental alerts
i. Check with a health care provider or early childhood specialist if, by four months of age, the infant does not:
   1. Continue to show steady increases in height, weight, and head circumference
   2. Smile in response to the smiles of others (the social smile is a significant developmental milestone)
   3. Gaze at and follow a moving object with eyes focusing together
   4. Bring hands together over midchest
   5. Turn head to locate sounds
6. Begin to raise head and upper body when placed on stomach
7. Reach for objects or familiar persons

i. Safety concerns
   i. Burns
      1. Do not bring hot beverages or appliances near baby
      2. Check temperature of bottles (if warming formula or breast milk) before offering them to an infant
   ii. Choking
      1. Check rattles and stuffed toys for small parts that could become loose
         a. Only purchase toys larger than 1.5 inches (3.75 cm) in diameter
      2. Remove all small items within baby’s reach
   iii. Falls
      1. Attend to baby at all times when on an elevated surface (e.g., changing table, sofa, counter, bed)
         a. Baby may turn over or roll unexpectedly
      2. Always place infant carriers on the floor (not on table or countertop)
   iv. Sharp objects
      1. Keep pins and other sharp objects out of baby’s reach
      2. Check nursery furniture for sharp or protruding edges
         a. Always purchase furnishings and toys that comply with federal safety standards

III. Four to Eight Months
    a. Between four and eight months, infants are developing a wide range of skills and greater ability to use their bodies
       i. Infants seem to be busy every waking moment, manipulating and mouthing toys and other objects
       ii. They “talk” all the time, making vowel and consonant sounds in ever greater variety and complexity
       iii. Initiate social interactions and respond to all types of cues, such as facial expressions, gestures, and the comings and goings of everyone in their world
       iv. Infants at this age are both self-occupied and sociable
          1. Move easily from spontaneous, self-initiated activity to social activities initiated by others
    b. Growth and physical characteristics
       i. Gains approximately one pound (2.2 kg) per month in weight
       ii. Doubles original birth weight
       iii. Increases length by approximately 1/2 inch (1.3 cm) per month; average length is 27.5 to 29 inches (69.8–73.7 cm)
       iv. Head and chest circumferences are nearly equal
       v. Increases in head circumference average 3/8 inch (0.95 cm) per month until six to seven months of age
1. Slows to approximately 3/16 inch (0.47 cm) per month
2. Head circumference should continue to increase steadily, indicating healthy, ongoing brain growth
   vi. Takes approximately 25 to 50 breaths per minute, depending on activity
      1. Rate and patterns vary from infant to infant
      2. Breathing is abdominal
   vii. Begins to develop teeth, with upper and lower incisors coming in first
   viii. Gums may become red and swollen, accompanied by increased drooling, chewing, biting, and mouthing of objects
   ix. Legs may appear bowed
      1. Bowing gradually disappears as infant grows older
   x. True eye color is established

   c. Motor development
   i. Reflexive behaviors are changing
      1. Blinking reflex is well established
      2. Sucking reflex becomes voluntary
      3. Moro reflex disappears.
      4. Parachute reflex appears toward the end of this stage (when held in a prone, horizontal position and lowered suddenly, infant throws out arms as a protective measure)
      5. Swallowing reflex appears (a more complex form of swallowing that involves tongue movement against the roof of mouth)
         a. Allows the infant to move solid foods from front of mouth to the back for swallowing
   ii. Reaches for objects with both arms simultaneously
      1. Later reaches with one hand or the other
   iii. Transfers objects from one hand to the other
      1. Still grasps objects using entire hand (palmar grasp)
   iv. Handles, shakes, and pounds objects; puts everything in mouth
   v. Helps to hold onto own bottle during feedings
   vi. Sits alone without support, holding head erect, back straightened, and arms propped forward for support
   vii. Pulls self into a crawling position by raising up on arms and drawing knees up beneath the body
      1. Rocks back and forth but generally does not move forward
   viii. Rolls over from front to back and back to front
   ix. Begins scooting backward, sometimes accidentally, when placed on stomach; soon will learn to crawl forward
   x. Enjoys being placed in standing position, especially on someone’s lap; jumps in place
xi. Begins to pick up objects using finger and thumb (pincher grip) near the end of this period
d. Perceptual-cognitive development
   i. Turns toward and locates familiar voices and sounds
      1. This behavior can be used for informal testing of an infant's hearing
   ii. Focuses eyes on small objects and reaches for them
   iii. Uses hand, mouth, and eyes in coordination to explore own body, toys, and surroundings
   iv. Imitates actions, such as pat-a-cake, waving bye-bye, and playing peek-a-boo
   v. Shows evidence of depth perception
      1. Tenses, pulls back, and becomes fearful of falling from high places, such as changing tables and stairs
   vi. Looks over side of crib or high chair for objects dropped
      1. Delights in repeatedly throwing objects overboard for adult to retrieve
   vii. Searches for toy or food that has been partially hidden under cloth or behind screen
      1. Beginning to understand that objects continue to exist even when they cannot be seen
         a. Piaget refers to this as object permanence
   viii. Handles and explores objects in a variety of ways:
      1. Visually
      2. Turning them around
      3. Feeling all surfaces
      4. Banging and shaking
   ix. Picks up inverted object (in other words, recognizes a cup even when it is positioned differently)
  x. Ignores second toy or drops toy in one hand when presented with a new toy
     1. Unable to deal with more than one toy at a time
  xi. Reaches accurately with either hand
  xii. Plays actively with small toys, such as rattle or block
  xiii. Bangs objects together playfully; bangs spoon or toy on table
  xiv. Continues to put everything into mouth
  xv. Establishes full attachment to mother or primary caregiver:
      1. Seeks out and prefers to be held by this adult
      2. This development coincides with a growing understanding of object permanence
e. Speech and language development
   i. Responds appropriately to own name and simple requests, such as “come,” “eat,” “wave bye-bye”
   ii. Imitates some nonspeech sounds, such as cough, tongue click, and lip smacking
iii. Produces a full range of vowels and some consonants: r, s, z, th, and w
iv. Responds to variations in the tone of voice of others—anger, playfulness, sadness
v. Expresses emotions, such as pleasure, satisfaction, and anger, by making different sounds
vi. “Talks” to toys
vii. Babbles by repeating same syllable in a series: ba, ba, ba.
viii. Reacts differently to noises, such as a vacuum cleaner, phone ringing, or dog barking
   1. May cry, whimper, or look for reassurance from parent or caregiver

f. Social-emotional development
i. Delights in observing surroundings
   1. Continuously watches people and activities
ii. Begins to develop an awareness of self as a separate individual from others
iii. Becomes more outgoing and social in nature
   1. Smiles, coos, and reaches out
iv. Distinguishes among and responds differently to strangers, teachers, parents, and siblings
v. Responds differently and appropriately to facial expressions
   1. Frowns, smiles
vi. Imitates facial expressions, actions, and sounds
vii. Remains friendly toward strangers at the beginning of this stage
   1. Later, is reluctant to be approached by or left with strangers
   2. Exhibits “stranger anxiety”
viii. Enjoys being held and cuddled
   1. Indicates desire to be picked up by raising arms and vocalizing
ix. Establishes a trust relationship with family members and teachers if physical and emotional needs are met consistently
   1. By six months, begins to show preference for primary caregiver
x. Laughs out loud
xi. Becomes upset if toy or other objects are taken away
xii. Seeks attention by using body movements, verbalizations, or both

g. Daily routines
i. Eating
   1. Adjusts feeding times to the family’s schedule
      a. Usually takes three or four feedings per day, each 6 to 8 ounces, depending on sleep schedule
   2. Caution: Do not allow infants to drink formula or juice from a bottle for extended periods of time
a. Baby bottle tooth decay (BBTD) can result from prolonged contact with these fluids and cause extensive damage
b. Small amount of water can be offered after feedings to rinse the teeth

3. Shows interest in feeding activities
   a. Reaches for cup and spoon while being fed
4. Able to wait a half hour or more after awakening for first morning feeding
5. Has less need for sucking
6. By six months, begins to accept a small amount of pureed foods, such as cereal and vegetables, when placed well back on tongue (if placed on tip, infant will push food back out)
7. Closes mouth firmly or turns head away when hunger is satisfied

ii. Toileting, bathing, and dressing
   1. Prefers being free of clothes
   2. Splashes vigorously with both hands and sometimes feet during bathtime
   3. Moves hands constantly; nothing within reach is safe from being spilled, placed in the mouth, or dashed to the floor
   4. Pulls off own socks
      a. Plays with strings, buttons, and velcro closures on clothing
   5. Has one bowel movement per day as a general rule, often at about the same time
   6. Urinates often and in quantity; female infants tend to have longer intervals between wetting

iii. Sleeping
   1. Awakens early in the morning; usually falls asleep soon after evening meal
   2. Begins to give up need for a late-night feeding
   3. Sleeps eleven to thirteen hours through the night
   4. Takes two or three naps per day (however, there is great variability among infants in terms of frequency and length of naps)

iv. Play and social activity
   1. Enjoys lying on back
      a. Arches back, kicks, stretches legs upward, grasps feet and brings them to mouth
   2. Looks at own hands with interest and delight
      a. May squeal or gaze at them intently
   3. Plays with soft, squeaky toys and rattles; puts them in mouth, bites, and chews on them
4. “Talks” happily to self
   a. Gurgles, growls, makes high squealing sounds
5. Differentiates between people
   a. Lively with those who are familiar
   b. May ignore or become anxious with others
6. Likes rhythmic activities
   a. Being bounced, jiggled, swayed about gently
h. Developmental alerts
   i. Check with a health care provider or early childhood specialist if, by eight months of age, the infant does not:
      1. Show an even, steady increase in weight, height, and head size (too slow or too rapid growth are both causes for concern)
      2. Explore his or her own hands and objects placed in his or her hands
      3. Hold and shake a rattle
      4. Smile, babble, and laugh out loud
      5. Search for hidden objects
      6. Begin to pick up objects using a pincer grip
      7. Have an interest in playing games, such as “pat-a-cake” and “peek-a-boo”
      8. Show interest in or respond to new or unusual sounds
      9. Reach for and grasp objects
     10. Sit alone
     11. Begin to eat some solid (pureed) foods
i. Safety concerns
   i. Burns
      1. Keep electrical cords out of reach and electrical outlets covered
         a. Inspect the condition of electrical cords and replace or remove them if worn or frayed
      2. Take precautions to protect baby from accidentally touching hot objects, such as oven or fireplace doors, space heaters, candles, burning cigarettes, or hot beverage cups
   ii. Falls
      1. Use approved safety gates to protect baby from tumbling down stairs
         a. Gates are also useful for keeping baby confined to an area for supervision
      2. When using a highchair, stroller, or grocery cart, always fasten the restraining straps
      3. Always raise crib sides to their maximum height and lock when baby is in bed
   iii. Poisons
1. Use safety latches on cabinet doors and drawers where potentially poisonous substances (e.g., medications, cleaning supplies, cosmetics, garden chemicals) may be stored

iv. Strangulation
   1. Never fasten teether or pacifier on a cord or around baby’s neck
   2. Remove crib gyms and mobiles after baby reaches five months or begins pushing up on hands and knees
   3. Avoid any clothing with drawstrings

IV. Eight to Twelve Months
a. Infant is gearing up for two major developmental events—walking and talking
   i. These milestones usually begin about the time of the first birthday
      1. Child’s cultural background may influence the rate and nature of these early skills
   ii. Infant is increasingly able to manipulate small objects and spends a great deal of time practicing by picking up and releasing toys or whatever else is at hand
   iii. Infants are also becoming extremely sociable
      1. Find ways to be the center of attention and to win approval and applause from family and friends
      2. When applause is forthcoming, the infant joins in with delight
   iv. Ability to imitate improves and serves two purposes:
      1. To extend social interactions
      2. To help the child learn many new skills and behaviors in the months of rapid development that lie ahead
b. Growth and physical characteristics
   i. Gains in height are slower than during the previous months, averaging 1/2 inch (1.3 cm) per month
      1. Infants reach approximately 1-1/2 times their birth length by the first birthday
   ii. Weight increases by approximately one pound (0.5 kg) per month
      1. Birth weight nearly triples by one year of age
      2. Infants weigh an average of 21 pounds (9.6 kg)
   iii. Respiration rates vary with activity
      1. Typically, 20 to 45 breaths per minute
   iv. Body temperature ranges from 96.4°F to 99.6°F (35.7°C–37.5°C)
      1. Environmental conditions, weather, activity, and clothing still affect variations in temperature
   v. Circumferences of head and chest remain equal
   vi. Uses abdominal muscles for breathing
vii. Anterior fontanel begins to close
viii. Approximately four upper and four lower incisors and two lower molars erupt
ix. Arms and hands are more developed than feet and legs (cephalocaudal development); hands appear large in proportion to other body parts
x. Legs may continue to appear bowed
xi. Feet appear flat as the arch has not yet fully developed
xii. Visual acuity is approximately 20/100
xiii. Both eyes work in unison (true binocular coordination)
xiv. Can see distant objects (15 to 20 feet away) and points at them
c. Motor development
   i. Reaches with one hand leading to grasp an offered object or toy
   ii. Manipulates objects, transferring them from one hand to the other
   iii. Explores new objects by poking with one finger
   iv. Uses deliberate pincer grip to pick up small objects, toys, and finger foods
   v. Stacks objects
      1. Also places objects inside one another
   vi. Releases objects or toys by dropping or throwing
      1. Cannot intentionally put an object down
   vii. Begins pulling self to a standing position
   viii. Begins to stand alone, leaning on furniture for support
      1. Moves or “cruises” around obstacles by side-stepping
   ix. Maintains good balance when sitting
      1. Can shift positions without falling
   x. Creeps on hands and knees
      1. Crawls up and down stairs
   xi. Walks with adult support, holding onto adult’s hand
      1. May begin to walk alone
d. Perceptual-cognitive development
   i. Watches people, objects, and activities in the immediate environment
   ii. Shows awareness of distant objects (15 to 20 feet away) by pointing at them
   iii. Responds to hearing tests (voice localization)
      1. Loses interest quickly and, therefore, may be difficult to test informally
   iv. Beginning to understand the meaning of some words (receptive language)
   v. Follows simple instructions, such as “wave bye-bye,” “clap hands”
   vi. Reaches for toys that are visible but out of reach
   vii. Puts everything in mouth
   viii. Continues to drop first item when other toys or items are offered
ix. Recognizes the reversal of an object
   1. Cup upside down is still a cup
x. Imitates activities
   1. Hitting two blocks together, playing pat-a-cake
xi. Drops toys intentionally and repeatedly; looks in direction of fallen object
xii. Shows appropriate use of everyday items
    1. Pretends to drink from cup, put on a necklace, hug doll, brush hair, make stuffed animal “walk”
xiii. Shows some sense of spatial relationships
    1. Puts block in cup and takes it out when requested to do so
xiv. Begins to show an understanding of causality
    1. For example, hands mechanical toy back to adult to have it rewound
xv. Shows some awareness of the functional relationship of objects
    1. Puts spoon in mouth, uses brush to smooth hair, turns pages of a book
xvi. Searches for completely hidden toy or object by the end of this period
e. Speech and language development
   i. Babbles or jabbers deliberately to initiate social interaction; may shout to attract attention, listen, and then shout again
   ii. Shakes head for “no” and may nod for “yes”
   iii. Responds by looking for voice when name is called
   iv. Babbles in sentence-like sequences, “ma ma ma ma”, “ba ba ba”
      1. Followed later by jargon (syllables and sounds common to many languages uttered with language-like inflection)
v. Waves “bye-bye”
   1. Claps hands when asked
vi. Says “da-da” and “ma-ma”
vii. Imitates sounds that are similar to those the baby has already learned to make
    1. Will also imitate motor noises, tongue clicking, lip smacking, and coughing
viii. Enjoys rhymes and simple songs; vocalizes and dances to music
ix. Hands toy or object to an adult when appropriate gestures accompany the request
f. Social-emotional development
   i. Exhibits a definite fear of strangers
      1. Clings to or hides behind parent or caregiver (“stranger anxiety”)
      2. Often resists separating from familiar adult (“separation anxiety”)
ii. Wants an adult to be in constant sight
   1. May cry and search room when they are not immediately visible
iii. Enjoys being near and included in daily activities of family members and teachers
   1. Is becoming more sociable and outgoing
iv. Enjoys novel experiences and opportunities to examine new objects
v. Shows need to be picked up and held by extending arms upward, crying, or clinging to adult’s legs
vi. Begins to exhibit assertiveness by resisting caregiver’s requests
   1. May kick, scream, toss toys or throw self on the floor
vii. Offers toys and objects to others
viii. Often becomes attached to a favorite toy or blanket
   1. Cries when it is missing
ix. Looks up and smiles at person who is speaking upon hearing his or her name
x. Repeats behaviors that get attention
   1. Jabbers continuously
xi. Carries out simple directions and requests
   1. Understands the meaning of common phrases, such as:
      a. “No”
      b. “Yes”
      c. “Come here”
g. Daily routines
i. Eating
   1. Eats three meals per day plus midmorning or midafternoon snacks, such as juice, fruit, crackers, and cereal
   2. Begins to refuse bottle
   3. Enjoys eating and usually has a good appetite
   4. Learns to drink from a cup and wants to hold it alone
      a. Will even tilt head backward to get the last drop
   5. Begins to eat finger foods
      a. May remove food from mouth, look at it, and put it back in
   6. Develops certain likes and dislikes for foods
   7. Continuously active
      a. Infant’s hands may be so busy that a toy is needed for each hand in order to prevent a cup or dish from being turned over or food grabbed and tossed
ii. Toileting, bathing, and dressing
   1. Enjoys bathtime
      a. Splashes and plays with washcloth, soap, and water toys
2. Loves to let water drip from a sponge or washcloth, pour water from cup to cup
3. Shows great interest in pulling off hats, taking off shoes and socks
4. Fusses when diaper needs changing; may pull off soiled or wet diaper
5. Cooperates to some degree in being dressed
   a. Helps put arms in armholes, may even extend legs to have pants put on
6. Has one or two bowel movements per day
7. Remains dry after nap on occasion

iii. Sleeping
1. Goes to bed willingly
   a. May not fall asleep immediately but will play or walk about in the crib, before falling asleep on top of covers
2. Sleeps until early morning
3. Plays alone and quietly for 15 to 30 minutes after awakening
   a. Then begins to make demanding noises, signaling the need to be up and about
4. Plays actively in the crib when awake
   a. Crib sides must be up and securely fastened
5. Takes one afternoon nap most days
   a. Length varies from infant to infant

iv. Play and social activities
1. Enjoys large motor activities: pulling to stand, cruising, standing alone, creeping
2. Some babies are walking at this point
3. Enjoys putting things on head: basket, bowl, cup
   a. Finds this very funny and expects people to notice and laugh
4. Puts objects in and out of each other: pans that nest, toys in and out of a box
5. Enjoys hiding behind chairs to play “Where’s baby?”
6. Throws things on floor and expects them to be returned
7. Shows interest in opening and closing doors and cupboards
8. Gives an object to an adult on request
   a. Expects to have it returned immediately
9. Responds to “no-no” by stopping
   a. On the other hand, the infant may smile, laugh, and continue inappropriate behavior, thus making a game out of it

h. Developmental alerts
i. Check with a health care provider or early childhood specialist if, by twelve months of age, the infant does not:
   1. Blink when fast-moving objects approach the eyes
   2. Begin to develop teeth
   3. Imitate simple sounds
   4. Follow simple verbal requests: come, bye-bye
   5. Pull self to a standing position
   6. Transfer objects from hand to hand
   7. Show anxiety toward strangers by crying or refusing to be held
   8. Interact playfully with parents, caregivers, and siblings
   9. Feed self
      a. Hold own bottle or cup
      b. Pick up and eat finger foods
   10. Creep or crawl on hands and knees

i. Safety concerns
   i. Choking
      1. Cut finger foods into small bites (1/4 inch [0.63 cm] or smaller)
      2. Avoid sticky foods (e.g., raisins, caramels, peanut butter) and hard foods (e.g., raw carrots, hard candies, nuts)
      3. Keep small objects, such as buttons, dry cat food, coins, and pen tops out of baby’s reach
      4. Keep garbage cans closed tightly
      5. Any item that fits through a toilet paper tube is too small for young children
   ii. Drowning
      1. Remove unsupervised sources of water, including bath water, fountains, pet dishes, and wading pools
      2. Place safety devices on toilet lids
      3. Enclose pools with fences and latched gates
      4. Install alarms on windows and doors
      5. Never leave a young child unsupervised in a pool or bathtub, even to answer the telephone
   iii. Falls
      1. Always strap infants into highchairs, grocery carts, strollers, and on changing tables
      2. Never allow them to stand up in or on these objects (unless you are holding onto the baby)
      3. Keep crib sides up and locked
      4. Pad sharp corners and edges of furniture and cabinet doors
      5. Place gates across stairs
   iv. Strangulation
      1. Purchase clothing, such as jackets, with elastic instead of pull strings in the hoods
2. Fasten cords on all blinds and curtains up high and out of children’s reach

v. Suffocation
1. Keep plastic bags and wrappings out of baby’s reach
2. Knot them and discard immediately
3. Remove lids from air-tight containers such as plastic storage tubs and toy chests.

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