Chapter 4
Developing Through the Life Span

Review 4.1: Physical Development
Jorge and Sonya Nunez have a son named Felipe. Felipe started out as a fertilized egg, or (1) zygote, whose cells quickly began to (2) divide. Two weeks into (3) prenatal development, his organs began to form and function, and he was referred to as an (4) embryo. As Felipe became more human in appearance, about 9 weeks after conception, he was called a (5) fetus. Throughout this process, Felipe’s genes interacted with the (6) environment, and Felipe was protected by the (7) placenta, which prevented many harmful substances from reaching him, and because Sonya didn’t drink alcohol, Felipe was NOT exposed to this harmful (8) teratogen and will not be at risk of developing (9) fetal alcohol syndrome. As a newborn, Felipe came equipped with a variety of (10) reflexes suited to survival, including the tendency to turn toward Sonya when she touched him on the cheek, called the (11) rooting reflex. Felipe is now an infant, and his biological and psychological development continues, depending to a large extent the rapid development of his brain’s (12) frontal lobes, with the last areas of the brain to develop being those linked with thinking, memory, and language—the (13) association areas of the cortex. As his genes continue to direct his biological growth through the process called (14) maturation, Felipe begins to sit, crawl, stand, walk, and then run. This (15) sequence of motor development is universal; the (16) timing is not. Felipe is now a teenager, an adolescent who has just attained sexual maturity, or (17) puberty. His younger sister, Elena, has reached the same stage, but she is only (18) 11 years old. During the growth spurt that follows, their reproductive organs—his testes and her ovaries, or (19) primary sexual characteristics — develop dramatically, while Elena’s breasts and hips and Felipe’s voice and body hair, or (20) secondary sexual characteristics, also begin to develop. When Jorge and Sonya criticize their children’s clothing, hairstyle, or the friends they bring home, Felipe storms outside, slamming the door behind him, and Elena retreats to her room, iPod in hand. Their behavior can be blamed in part on the early development of the brain’s emotional (21) limbic system. Fortunately, this is followed by selective (22) pruning of unused neurons and connections and the growth of fatty (23) myelin tissue in the frontal lobes, which leads to improved judgment and impulse control. Adulthood brings benefits and challenges: Both Felipe and Elena can maintain physical vigor if they have good (24) health habits. For Elena, biological aging is signaled by the end of menstruation, or (25) menopause, which is accompanied by a reduction in the hormone (26) estrogen. For Felipe, there is no comparable loss of (27) fertility, but there is a gradual decline in sperm count and lower levels of the hormone (28) testosterone. In old age, their (29) immune systems weaken, and they are (30) more susceptible to life-threatening illnesses and (31) less susceptible to short-term illnesses.

Review 4.2: Cognitive Development
The Núñez family lives in the city. Every year, beginning when the children are very young, they vacation on a farm. In the city, the children see many dogs and develop a concept, or (1) schema, for four-legged animals. On the farm, they see pigs and goats and try to (2) assimilate these animals into their dog concept, but Sonya corrects them and identifies the animals as separate concepts, so the children have to (3) accommodate their schemas to their new experiences. Also according to Jean (4) Piaget, the mind develops through a series of (5) stages as we continually modify our thinking to fit the particulars of new experiences. At age 1, Elena puts all objects—rattles, keys, anything within reach—into her mouth. She’s in the (6) sensorimotor stage. If the rattle is hidden, Elena knows it’s still there somewhere and will search for it. She has developed (7) object permanence. At age 3, Felipe has an imaginary friend and can describe events with words, and so is in the (8) preoperational stage. He doesn’t understand that water in an inverted beaker could be the same amount as water in a rightside-up beaker—the concept of (9) conservation —and when he covers his eyes, he thinks no one can see him, which means he is (10) egocentric. When Elena is 6 and Felipe is 8, they can understand that the two beakers contain the same amount, and so they are in the (11) concrete operational stage. According to Lawrence (12) Kohlberg, Felipe and Elena have probably developed a (13) preconventional morality based on a desire to avoid punishment or gain rewards. With adolescence comes newfound reasoning abilities and a
strong moral sense: Now in the (14) formal operational stage, Felipe and Elena think about such abstract concepts as war, justice, and democracy, and their morality has evolved to a more (15) conventional level, based on upholding laws and obeying rules. Jorge and Sonya, who are now in their 50s, join their children, who are in their 20s, in a memory test. Research indicates that Felipe and Elena will be better at (16) recalling information, while Jorge and Sonya will excel at (17) recognizing information. Also, Mom and Pop’s ability to solve Sudoku puzzles (to reason speedily), reflected in their (18) fluid intelligence, will decline, while their ability to win at Scrabble (to have a large vocabulary), reflected in their (19) crystallized intelligence, will increase. At first, researchers thought intelligence generally declined with age. This was because they compared the test scores of people of different ages, using the (20) cross-sectional method, while newer research, using the (21) longitudinal method, showed that intelligence remained stable until late in life.

Review 4.3: Social Development
Many years later, Elena’s daughter Leah asks her 90-year-old grandmother Sonya about her early life. Sonya tells Leah, “I had a wonderful childhood, with loving parents who made me feel safe and secure.” Developmental theorist Erik (1) Erikson might say that this secure (2) attachment allowed Sonya to develop a sense of (3) basic trust. As a toddler, Sonya was encouraged to try new things and was applauded for her efforts. She developed a sense of independence or (4) autonomy, rather than the shame and (5) doubt that could have occurred during this stage. All of this was possible because her parents were demanding but warm and responsive, or (6) authoritative—not lenient, as (7) permissive parents may be, or extremely strict and demanding as (8) authoritarian parents are. This parenting style contributed to Sonya’s high (9) self-esteem and her (10) social competence. As a child in school, when Sonya began learning how to read and write, she developed a sense of (11) competence rather than inferiority and a clear sense of her own identity and personal worth, or a (12) self-concept. As a teenager, Sonya was aggressive and opinionated with her friends but shy and agreeable with her parents until she finally merged these different selves into a consistent (13) identity. During high school, Sonya moved from small groups of girlfriends to mixed groups of boys and girls to dating one boy. Along the way, she learned about relationships and developed a capacity for (14) intimacy, thus avoiding a sense of social (15) isolation. Then, following the culturally preferred timing of social events, or the (16) social clock, she married her childhood sweetheart, Jorge, after college. They both had fulfilling careers while raising a loving, caring family. Sonya says, “These contributions to the world and to future generations have given Jorge and me a strong sense of (17) generativity, unlike mean old Mr. Ramirez across the street, whose life has been purposeless.” Erikson would say Ramirez is (18) stagnant. Sonya continued, “As your grandfather and I look back on our lives, we are content. Our lives have been meaningful and worthwhile; we have a sense of (19) integrity rather than the despair felt by Mr. Ramirez.”