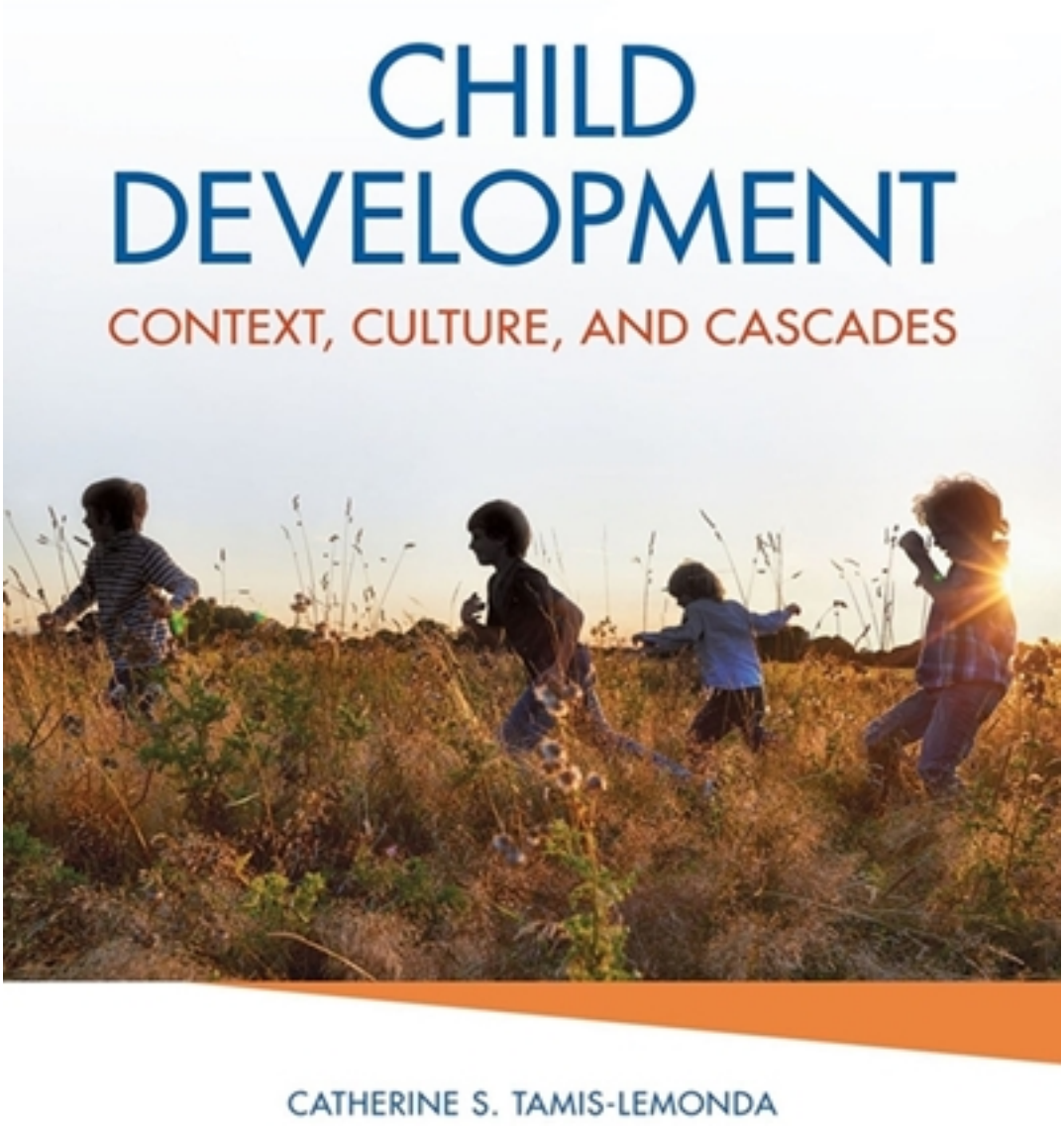
Test Bank for Child Development Context Culture and Cascades 1st Edition by Tamis-LeMonda



Test Bank

Test Bank to accompany
Child Development: *Context, Culture, and Cascades*

Chapter 2: Heredity, Environment, and the Brain

Multiple Choice Questions

1. James Watson and Francis Crick's description of the exact structure of DNA led to the
a. discovery of chromosomes.
b. understanding of sex-linked traits.
c. later discovery of the genetic code.
d. belief that genes are immutable.
e. discovery of chromosomal abnormalities.
Answer: c
Subhead: Chromosomes, DNA, and Genes
Learning Objective: 2.1 Explain the connection between chromosomes, DNA, and genes.
Bloom's Level: 1. Remembering

2. Jeremy and Sam are identical twins. However, Sam is slightly taller than Jeremy. Differences such as this
a. occur during the process of meiosis.
b. reflect differences in genotype.
c. reveal differences in genetic code.
d. show differences in phenotype.
e. occur during the process of mitosis.
Answer: d
Subhead: From Gametes to Human Beings
Learning Objective: 2.2 Explain the process that leads from the fertilization of a zygote to the expression of a sex-linked trait.
Bloom's Level: 3. Applying

3. Lilly and Max are dizygotic twins. A doctor once explained to their parents that Max has a higher chance of inheriting color blindness than Lilly. Why would that be?
a. Color blindness is dominant and dominant genes affect males more than females.
b. Color blindness is a sex-linked trait associated with the X chromosome.
c. Color blindness only affects males as it is associated with a dominant gene on the Y chromosome.
d. Color blindness is only passed on to males through their mother.
e. Color blindness is only passed on to males through their father.
Answer: b
Subhead: From Gametes to Human Beings
Learning Objective: 2.2 Explain the process that leads from the fertilization of a zygote to the expression of a sex-linked trait.
Bloom's Level: 4. Analyzing

4. Imani grew up in a region of Africa where malaria is prevalent. Many in her community that have lived there for generations seem to have increased resistance to the disease compared to families who have recently moved to the area. However, others moved away from Africa to areas without malaria where the gene was not needed to protect against the disease. This instance is an example of a
a. negative mutation.
b. neutral mutation.
c. positive mutation.
d. fixed-region mutation.
e. mixed mutation.
Answer: e
Subhead: Mutations
Learning Objective: 2.3 Distinguish among neutral, positive, negative, and mixed mutations.
Bloom's Level: 2. Understanding

5. Klinefelter syndrome and Turner syndrome provide evidence that
a. mixed mutations are not always positive.
b. random negative mutations can occur.
c. mutations are always linked to sex-linked chromosomes.
d. mutations are typically passed on by the mother.
e. environment has little effect on most genes.
Answer: b
Subhead: Mutations
Learning Objective: 2.3 Distinguish among neutral, positive, negative, and mixed mutations.
Bloom's Level: 3. Applying

6. Scientists' relatively recent ability to locate a gene thought to be involved in an inherited disease can be attributed to
a. the study of genetic mutations.
b. adoption studies.
c. twin studies.
d. the Human Genome Project.
e. the gene therapy project.
Answer: d
Subhead: Decoding the Genome
Learning Objective: 2.4 Illustrate how the Human Genome Project and current advances in the science of genetics may create ethical challenges for society.
Bloom's Level: 1. Remembering

7. By the end of the first year, infants have a distinct _____, which continues to develop until around 3 years of age.
a. phenotype
b. genotype
c. microbiome
d. gamete
e. chromosomal link

Answer: c
Subhead: The Microbiome
Learning Objective: 2.5 Explain the role of the microbiome in health.
Bloom's Level: 1. Remembering

8. Which provides the best example of canalization?
a. Twins who reach different heights in adulthood
b. A boy born with blue eyes who now has brown eyes in adulthood
c. A son who grows to be nearly 5 inches taller than either parent
d. A daughter who reaches the same height as her biological mother
e. A girl with hazel eyes who still has hazel eyes in adulthood
Answer: e
Subhead: How Do Genes and Environment Interact?
Learning Objective: 2.6 Explain the various ways that genes and environment work together to affect human development.
Bloom's Level: 3. Applying

9. A person's _____ has a higher degree of phenotypic plasticity than their _____.
a. eye color; height
b. skin color; weight
c. height; weight
d. diet; weight
e. weight; eye color
Answer: e
Subhead: How Do Genes and Environment Interact?
Learning Objective: 2.6 Explain the various ways that genes and environment work together to affect human development.
Bloom's Level: 3. Applying

10. Darius and Xavier are identical twins. At age 20, Darius was diagnosed with cancer but recovered with treatment. The two men are now 50 years old and Xavier has never been diagnosed with cancer. What concept might explain this difference?
a. Gene therapy
b. Genetic transmission
c. Epigenetics
d. Evocative expression
e. Passive expression
Answer: c
Subhead: How Do Genes and Environment Interact?
Learning Objective: 2.6 Explain the various ways that genes and environment work together to affect human development.
Bloom's Level: 4. Analyzing

11. Talia is a very active preschooler who loves sports and active play. Her parents recognize her need to be active and choose to enroll her in a few programs at their local YMCA. The parent's reaction to Talia's activity level is an example of

a. evocative effects.
b. proactive limitations.
c. epigenetics.
d. gene-environment matching.
e. systematic effects.
Answer: a
Subhead: How Do Genes and Environment Interact?
Learning Objective: 2.6 Explain the various ways that genes and environment work together to affect human development.
Bloom's Level: 3. Applying

12. In comparing both animal studies and twin studies, researchers feel confident in the finding that
a. animals and humans have similar gene-environment interactions on a few traits.
b. humans experience a stronger gene-environment interaction than animals.
c. animals' genetic contribution is higher for nearly every trait in comparison with humans.
d. the same principles of gene-environment interactions observed in animals apply to humans.
e. animals' genetic contribution is lower for nearly every trait in comparison with humans.
Answer: d
Subhead: Epigenetic Principles: From Animals to Humans
Learning Objective: 2.7 Describe the unique value of animal research in both the testing of gene-environment interactions and also its application to studies of human development.
Bloom's Level: 1. Remembering

13. Champagne and Meaney's study of rat licking provided evidence that
a. caregiving is genetically hard-wired into all species.
b. animals and humans have differences in genetic transmission.
c. early experience may alter gene expression.
d. genes alter our environment.
e. only the strongest genetic traits persist.
Answer: c
Subhead: Epigenetic Principles: From Animals to Humans
Learning Objective: 2.7 Describe the unique value of animal research in both the testing of gene-environment interactions and also its application to studies of human development.
Bloom's Level: 2. Understanding

14. A(n) _____ has been used to describe the unique components and interactive influence genetic and environmental aspects have on human development.
a. ladder metaphor
b. library metaphor
c. computer metaphor
d. animalistic analogy
e. evolutionary analogy
Answer: b
Subhead: Summing Up: The Library Metaphor
Learning Objective: 2.8 Apply a library metaphor to explain gene-environment interactions.

Bloom's Level: 1. Remembering

15. Six-year-old Maya was involved in a car accident. The doctors mentioned that Maya has some swelling of her occipital lobe. Which of these might be affected with an injury to this part of the brain?
a. Vision
b. Attention
c. Smell and taste
d. Motor control
e. Memory
Answer: a
Subhead: Forebrain
Learning Objective: 2.9 Describe the structures of the forebrain and the functions of each.
Bloom's Level: 3. Applying

16. The cerebral cortex is
a. responsible for regulating heart rate and breathing.
b. the smallest and lightest portion of the brain.
c. nearly fully developed shortly after birth.
d. responsible for higher functions such as language and memory.
e. a dense tract of nerve fibers.
Answer: d
Subhead: Forebrain
Learning Objective: 2.9 Describe the structures of the forebrain and the functions of each.
Bloom's Level: 2. Understanding

17. A child is confronted by an unfamiliar barking dog. The child's heart starts to race as he runs away. Which part of the brain helps prepare for this response to a fearful situation?
a. Temporal lobe
b. Forebrain
c. Thalamus
d. Amygdala
e. Right hemisphere
Answer: d
Subhead: Forebrain
Learning Objective: 2.9 Describe the structures of the forebrain and the functions of each.
Bloom's Level: 3. Applying

18. The part of the brain responsible for higher-order skills and that distinguishes humans from other animals is the
a. hindbrain.
b. midbrain.
c. brain stem.
d. medulla.
e. cerebral cortex.
Answer: e

Subhead: Midbrain and Hindbrain
Learning Objective: 2.10: Explain why the midbrain and hindbrain may be found in all animals.
Bloom's Level: 3. Applying

19. Which is an accurate description of the hindbrain?
a. It is responsible for complex thinking and planning.
b. It is responsible for regulating many basic life functions such as heart rate and digestion.
c. It is only found in humans, not animals.
d. It is responsible for communication between hemispheres.
e. It is the last portion of the brain to fully develop.
Answer: b
Subhead: Midbrain and Hindbrain
Learning Objective: 2.10: Explain why the midbrain and hindbrain may be found in all animals.
Bloom's Level: 2. Understanding

20. Electrical impulses travel from the cell body to _____ where neurotransmitters are released to send signals to other neurons.
a. dendrites
b. cell wall
c. neurons
d. axon terminals
e. glial cells
Answer: d
Subhead: Neurons and Glial Cells
Learning Objective: 2.11 Describe the main parts of neurons.
Bloom's Level: 1. Remembering

21. The part of a neuron responsible for receiving neural transmissions is the
a. cell body.
b. axon.
c. glial cell.
d. dendrite.
e. myelin.
Answer: d
Subhead: Neurons and Glial Cells
Learning Objective: 2.11 Describe the main parts of neurons.
Bloom's Level: 1. Remembering

22. What surrounds and protects neurons, and influences communication among neurons by helping in the formation and strengthening of synapses?
a. Cell bodies
b. Suppressed neurons
c. Myelin
d. Glial cells
e. Dendrites
Answer: d

Subhead: Neurons and Glial Cells
Learning Objective: 2.11 Describe the main parts of neurons.
Bloom's Level: 1. Remembering

23. A researcher wishes to study the electrical brain activity of infants as they process stimuli. They are likely to use which technology to record the electrical activity in the surface of infants' brains?
a. fMRI
b. EEG
c. EKG
d. PET
e. MRI
Answer: b
Subhead: New Ways to Study the Brain
Learning Objective: 2.12 Describe different technologies used in the study of the human brain, and contrast their benefits and limitations.
Bloom's Level: 3. Applying

24. Research shows that a large number of neural connections are formed during the first few months and years of life. This process is known as
a. migration.
b. myelination.
c. synaptogenesis.
d. neurogenesis.
e. pruning.
Answer: d
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 2. Understanding

25. The death of superfluous neuronal connections is referred to as
a. neurogenesis.
b. synaptogenesis.
c. pruning.
d. myelination
e. migration.
Answer: c
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 1. Remembering

26. A main benefit due to the process of myelination is the
a. development of synaptic connections.
b. pruning of unnecessary and unused neural connections.
c. improvement in the conductivity of the nerve impulses.
d. growth of the neural tube.

e. increase in the number of dendrites.
Answer: c
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 2. Understanding

27. Synaptogenesis begins prenatally and is especially rapid
a. after three years of age.
b. after the first year.
c. before adolescence.
d. before and after birth.
e. before a child's third birthday.
Answer: d
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 1. Remembering

28. Bridget and Theo are parents of an infant. A friend encourages them to buy a learning system for their infant, citing the "use it or lose it" concept of maintaining existing neural connections. Is this the best advice?
a. Yes, infants have billions of neurons and now is the time to maintain them.
b. Yes, infants crave stimulation, and this is the critical period for brain growth.
c. No, pruning away excess neurons will improve the child's neural communication.
d. No, synaptogenesis must be allowed to occur naturally without a structured environment.
e. Yes, early brain growth leads to better synaptic connections later in childhood.
Answer: c
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 4. Analyzing

29. The brain's volume gradually increases over childhood through the process of
a. germination.
b. maturation.
c. synaptogenesis.
d. migration.
e. regeneration.
Answer: c
Subhead: Periods of Brain Development
Learning Objective: 2.14 Explain how developments in the brain differ in the first years of life compared to later periods in the life course.
Bloom's Level: 1. Remembering

30. Which best describes brain development from birth through adolescence?
a. Synapses are pruned in early childhood as a response to the environment but grow back in adolescence as the child matures.

b. Synapses that are unused are pruned while myelination of the axon increases the efficiency of communication between childhood and adolescence.
c. Dendrite and axon communication becomes less efficient as the child moves into adolescence.
d. Axons and dendrites expand in the number of connections they make during the adolescent years.
e. Axons and dendrites become thinner and more sparse throughout childhood and adolescence.
Answer: b
Subhead: Periods of Brain Development
Learning Objective: 2.14 Explain how developments in the brain differ in the first years of life compared to later periods in the life course.
Bloom's Level: 3. Applying

31. Hubel and Wiesel's experiments with kittens helped to better understand
a. synaptogenesis.
b. experience-expectant plasticity.
c. experience-dependent plasticity.
d. neurogenesis.
e. synaptic pruning
Answer: b
Subhead: Experience-Expectant Plasticity
Learning Objective: 2.15 Identify situations in which a person's brain development may diverge from its typical course in line with experience-expectant plasticity.
Bloom's Level: 3. Applying

32. Jess was born with cataracts in both eyes. Considering brain-expectant plasticity, which is the best course of action?
a. Take no action until Jess is at least 5 years of age. The brain is highly adaptive and no significant impact to the brain will occur.
b. Take action at 2 to 3 years of age, after monitoring the effect of the cataracts on vision over time, but before preschool begins.
c. Take no action, as the brain will adapt to the cataracts and can disrupt the specialized fine-tuning of neural connections.
d. Remove the cataracts after age 3 years and provide specialized brain exercises to improve functioning.
e. Remove the cataracts during infancy, as removing them after infancy increases the chance of visual impairments.
Answer: e
Subhead: Experience-Expectant Plasticity
Learning Objective: 2.15 Identify situations in which a person's brain development may diverge from its typical course in line with experience-expectant plasticity.
Bloom's Level: 3. Applying

33. Which is proof that regions of the brain specialized for experience-expectant plasticity are not necessarily locked into their "expected" paths of development?
a. A deaf child's auditory processing areas become specialized for visual processing.
b. An older child's hindbrain takes over many of the tasks once attributed to the cerebral cortex.

c. Specialized brain stimulation programs mimic auditory stimuli, prompting growth of auditory processing areas.
d. A deaf child's cerebral cortex increases in gray matter, compensating for lack of auditory stimuli.
e. A young child's cerebral cortex decreases in white matter, compensating for lack of auditory stimuli.
Answer: a
Subhead: Experience-Expectant Plasticity
Learning Objective: 2.15 Identify situations in which a person's brain development may diverge from its typical course in line with experience-expectant plasticity.
Bloom's Level: 1. Remembering

34. Research in brain growth and functioning has led to greater understanding of why some children are _____, while others suffer great harm under adverse environmental conditions.
a. expectant
b. resilient
c. neuro-typical
d. experience-expectant
e. sensitive
Answer: b
Subhead: Experience-Dependent Plasticity
Learning Objective: 2.16 Explain the type of experiences that may shape the brain development of individual children in line with experience-dependent plasticity.
Bloom's Level: 3. Applying

35. Which is a likely example of experience-dependent brain plasticity?
a. A school-age child's pre-frontal cortex grows naturally.
b. A child raised in a high-stress environment shows increases in surface area of the brain relative to children without such an experience.
c. A child raised in a highly enriched environment shows increases in surface area of the brain relative to children without such an experience.
d. A child raised in a high SES household shows decreases in specific areas of the brain relative to children in low SES households.
e. A child raised in poverty shows resilience despite the impoverished environment.
Answer: c
Subhead: Experience-Dependent Plasticity
Learning Objective: 2.16 Explain the type of experiences that may shape the brain development of individual children in line with experience-dependent plasticity.
Bloom's Level: 3. Applying

36. Much of what is known about experience-dependent plasticity is a result of
a. experimental studies with twins.
b. experimental studies with adopted children and families.
c. correlational studies of children in various home environments.
d. brain imaging research in large-scale, controlled-experiments.
e. correlational studies exclusively in rats.

Answer: c
Subhead: Experience-Dependent Plasticity
Learning Objective: 2.16 Explain the type of experiences that may shape the brain development of individual children in line with experience-dependent plasticity.
Bloom's Level: 1. Remembering

37. Which best describes the concept of sensitive periods in relation to brain development?
a. There are times in development when then the brain expects to develop certain skills.
b. There are times in development when the brain is most susceptible to experiences.
c. The brain is more susceptible to certain experiences than others across development.
d. The brain is hard-wired to learn particular skills.
e. The brain is no longer thought of as being hard-wired for brain growth.
Answer: b
Subhead: Critical Periods versus Sensitive Periods in Brain Development
Learning Objective: 2.17 Illustrate with examples how the developmental timing of experiences matters for brain development.
Bloom's Level: 2. Understanding

38. Learning a language is substantially easier up until the age of 12. This is evidence of
a. critical periods.
b. sensitive periods.
c. niche-picking.
d. brain lateralization.
e. myelination.
Answer: b
Subhead: Timing of Experience
Learning Objective: 2.17 Illustrate with examples how the developmental timing of experiences matters for brain development.
Bloom's Level: 3. Applying

39. _____ appear(s) to adjust in line with human experience and can serve to accelerate or delay the opening of a sensitive period.
a. Critical periods
b. Experience-expectant brain growth
c. Canalization
d. Brain plasticity
e. Neurogenesis
Answer: d
Subhead: Timing of Experience
Learning Objective: 2.17 Illustrate with examples how the developmental timing of experiences matters for brain development.
Bloom's Level: 2. Understanding

40. In 2013, the U.S. government launched the _____ to encourage scientific discovery of new tools and methods to study the brain.
a. BRAIN initiative

b. Neurological Society of America
c. Brain-Based Project
d. Frontiers of Science Foundation
e. Brain Balance Study
Answer: a
Subhead: Looking to the Future
Learning Objective: 2.18 Reflect on the clinical applications of new initiatives and research on the brain, including potential improvements to human development.
Bloom's Level: 1. Remembering

Short-Answer Questions

41. Briefly explain why select groups of people are more likely to develop disorders such as Turner Syndrome.
Answer: Disorders such as Turner syndrome are sex-linked genetic mutations that involve partial or missing X chromosomes. Therefore, females are at greater risk of developing the disorder as they possess two X chromosomes. It is rarely reported in males.
Subhead: Mutations
Learning Objective: 2.3 Distinguish among neutral, positive, negative, and mixed mutations.
Bloom's Level: 4. Analyzing

42. Why are genetic mutations not always a negative? Provide an example.
Answer: Some mutations are the result of the organism adapting to their environment, expanding the genetic variability of a population. This can lead to a heightened chance of survival. An example of this is a genetic mutation that provides resistance to diseases that are common in a given area.
Subhead: Mutations
Learning Objective: 2.3 Distinguish among neutral, positive, negative, and mixed mutations.
Bloom's Level: 4. Analyzing

43. Provide one example of how canalization can influence the expression of a person's genotype.
Answer: Eye color is an example of how particular traits produce the same phenotype regardless of environmental variability.
Subhead: How Do Genes and Environment Interact?
Learning Objective: 2.6 Explain the various ways that genes and environment work together to affect human development.
Bloom's Level: 3. Applying

44. Explain why the popular concept of a person being "left-brained" or "right-brained" is not exactly accurate.
Answer: While the two hemispheres have particular specialized areas, they most often work in coordination with one another. This is especially true of higher-order and complex functions. For example, although some aspects of language are lateralized in the left hemisphere, both hemispheres are involved in language.
Subhead: Forebrain

Learning Objective: 2.9 Describe the structures of the forebrain and the functions of each.
Bloom's Level: 4. Analyzing

45. What makes the forebrain unique?
Answer: It is the part of the brain that is unique to humans. It is the largest part of the brain, making up nearly 80% of the volume. It consists of the cerebrum, which divides into four lobes that are involved in many higher-level processes (such as executive function and memory).
Subhead: Forebrain
Learning Objective: 2.9 Describe the structures of the forebrain and the functions of each.
Bloom's Level: 3. Applying

46. Describe the strengths and weaknesses of using fMRI to form an understanding a child's brain.
Answer: fMRI provides the timing and location of brain activity with a high degree of precision. It maps this activity while a person is engaging in an actual mental activity. However, fMRI cannot be used on children under five or six years of age, because it requires the person to remain still in the scanner, which is extremely difficult for young children.
Subhead: New Ways to Study the Brain
Learning Objective: 2.12 Describe different technologies used in the study of the human brain, and contrast their benefits and limitations.
Bloom's Level: 2. Understanding

47. A researcher wishes to study the brain activity of an infant. Describe one method the researcher might use and what types of information the method offers.
Answer: The possible methods may include EEG, MEG, and NIRS. Each of these tests is acceptable to use with infants. The MEG is a bit more precise than the EEG in determining the location of brain activity if that is of concern. The NIRS provides information without requiring the infant to be immobilized or highly restricted in movement.
Subhead: New Ways to Study the Brain
Learning Objective: 2.12 Describe different technologies used in the study of the human brain, and contrast their benefits and limitations.
Bloom's Level: 5. Evaluating

48. What is myelination and how does it impact a child's learning?
Answer: Myelination is the process by which a fatty substance develops on the axons of neurons. It is a sheath that helps make neural communication more efficient. The increase in efficiency throughout childhood explains why older children have the greater processing speed needed for more complex tasks.
Subhead: How the Brain Changes
Learning Objective: 2.13 Describe five processes involved in brain growth.
Bloom's Level: 4. Analyzing

49. Describe the relationship between language development and the concept of experience-expectant plasticity.
Answer: In infants, certain dense areas of the brain are in effect "expecting," or waiting

for speech. As speech input is channeled to select brain regions, the specialization of those brain areas and pathways strengthen. This provides the foundation for continued language development.
Subhead: Experience-Expectant Plasticity
Learning Objective: 2.15 Identify situations in which a person's brain development may diverge from its typical course in line with experience-expectant plasticity.
Bloom's Level: 4. Analyzing

50. Jenny was adopted into a nurturing middle-class home at three years of age. Prior to this, Jenny lived in a large orphanage in a developing county. What might explain Jenny's difficulty in establishing positive relationships with her parents, even after being in the family for three years?
Answer: There are sensitive periods of development. We know that infants form attachments during the first three years after birth. There may exist a sensitive period for developing social and emotional closeness to primary caregivers in relationship formation. However, these impacts are not irreversible.
Subhead: Timing of Experience
Learning Objective: 2.17 Illustrate with examples how the developmental timing of experiences matters for brain development.
Bloom's Level: 4. Analyzing