

True / False

1. Sickle-cell disease is a direct result of teratogenic influences, including maternal malnutrition or tobacco use.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Understand

2. When a child is conceived, the parents pass along 46 genes, two of which decide whether the baby will be a boy or a girl.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Understand

3. When the alleles in a pair of chromosomes are the same, they are referred to as heterozygous.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Understand

4. If a dominant gene meets up with a recessive gene, the traits that are contained in the dominant gene will ultimately be expressed.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Understand

5. Genetically, identical twins and fraternal twins share the same amount of genes. The enhanced similarities seen in identical twins are a result of environmental factors.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Understand

6. During the neonatal period, the fertilized egg is transformed into a newborn human.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Understand

7. Only a single sperm cell can successfully make the journey up a woman's Fallopian tube to an unfertilized egg.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Understand

8. Once a zygote implants itself in the lining of the uterus, it becomes a fetus.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Understand

9. An embryo rests in a sac called the placenta, which is filled with amniotic fluid that cushions the embryo and maintains a constant temperature.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Understand

10. The age of viability for a fetus normally occurs between 22 and 28 weeks after conception. The age of viability for a fetus normally occurs between 22 and 28 weeks after conception.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Understand

11. During pregnancy, it is necessary for the mother to eat 10% to 20% more calories than regular in order to adequately

provide for the needs of her unborn child.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Understand

12. When a woman experiences higher levels of stress during pregnancy, her child may be prone to greater difficulties paying attention as an infant and higher levels of behavioral problems in preschool.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Understand

13. The major risks of a mother contracting the chicken pox during pregnancy include encephalitis, an enlarged spleen, and blood clotting problems in the baby.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Understand

14. The research is clear that a pregnant woman may safely consume up to three glasses of red wine, four ounces of hard liquor or three standard-sized servings of beer a week without harming her unborn child.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Understand

15. Environmental teratogens pose a special risk for unborn babies because people are often unaware of their presence so pregnant women cannot protect themselves or their babies.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Understand

16. The least invasive form of prenatal screening discussed in your textbook is the use of an ultrasound.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Understand

17. When laboring women are supported by a trained attendant or companion, their labors are shorter and they use less medication.

- a. True
- b. False

ANSWER: True

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.02 - What are the “natural” ways of coping with the pain of childbirth?

KEYWORDS: Bloom's: Understand

18. About 10% to 15% of new mother experience the “baby blues,” which is a very serious psychological condition that can lead to problems for the child.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.03 - What adjustments do parents face after a baby’s birth?

19. A child who weighs less than 1,000 grams at birth would be described as being a “low birth weight” baby.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Understand

20. Although in-vitro fertilization is successful approximately 75% of the time, it is very expensive and is rarely covered by health insurance.

- a. True
- b. False

ANSWER: False

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Understand

Multiple Choice

21. How many chromosomes are found in the organism that results from the union of a human sperm cell and an egg cell?

- a. 22
- b. 23
- c. 44
- d. 46

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Remember

22. Kathleen and Alphonse are expecting their first child, and are having a pleasant conversation about the sex of the baby. Kathleen says, "Well, as long as all of the chromosomes are X, we'll be having a girl!" How can Alphonse best respond?

- a. "That isn't exactly right, since it is an XY chromosomal pattern that produces a female baby."
- b. "Actually, it is only one pair of chromosomes that determines the sex of the baby, but as long as they are both X, you will have a girl."
- c. "It is not the chromosomes, but the genes that make up the chromosomes that determine whether we'll have a son or a daughter."
- d. "We still have six months to go before the sex of the baby will be determined by the 15th and 16th pairs of chromosomes."

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

23. When looking through a microscope at an entire set of human male chromosomes, how would you be able to differentiate an autosome pair from a sex chromosome pair?

- a. The sex chromosome pair would be about 10 times larger than the autosome pair.
- b. The circular-shaped cells would be the autosomes and the square shapes would be the sex chromosomes.
- c. There would be three cells in the autosome "pair" and two cells in the sex chromosome "pair."
- d. The shape of the sex chromosomes would differ, whereas each autosome pair would look identical.

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Analyze

24. How many of the pairs of chromosomes in normal human cells are considered autosomes?

- a. 1
- b. 12
- c. 22
- d. 46

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Remember

25. Which of the following is *NOT* one of the chemical compounds that makes up a strand of DNA?

- a. depreanine
- b. adenine
- c. thymine
- d. cytosine

ANSWER: a

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Remember

26. How is it that DNA "knows" which specific amino acids, proteins, or enzymes to create?

- a. The number of chromosomes that makes up the DNA strand determines this outcome.
- b. The length of the DNA strand, determined by the number of genes on the strand, produces the specific outcome.
- c. The combination of XX and XY chromosomes in the DNA strand determines this outcome.
- d. The order in which the four nucleotide bases occur in the DNA strand results in the specific production outcomes.

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Analyze

27. Kimberley is having a discussion with her friend Aasta about the genetic determinants of development. They cannot come to an agreement on what the functional units of heredity are. If they asked you to help them figure this out, what would you say?

- a. The functional units of heredity are chromosomes.
- b. The functional units of heredity are genes.
- c. The functional units of heredity are ribosomes.
- d. The functional units of heredity are nucleotides.

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

28. When Chester is conceived by his parents, he has the genetic instructions to grow up to be 6'1" tall. During his childhood, however, he develops a digestive illness that significantly limits the amount of food he can eat, and he regularly fails to get enough vitamins in his diet. As a result, he grows up to be 5'11" tall. In this example, a height of 6'1" is best described as Chester's ____ and a height of 5'11" is best described as Chester's ____.

- a. phenotype; genotype
- b. chromotype; nucleotype
- c. nucleotype; chromotype
- d. genotype; phenotype

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

29. Genotype is to phenotype as
- a. homozygous is to heterozygous.
 - b. nurture is to nature.
 - c. DNA is to RNA.
 - d. genetic pattern is to physical, behavioral, and psychological features.

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Analyze

30. Kendrie has the disease called sickle cell anemia. She is not just a carrier of the illness, but she actually has the disease itself. Which of the following best describes Kendrie's red blood cell alleles?

- a. heterozygous
- b. genotypical
- c. homozygous
- d. phenotypical

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

31. When you learned to read English, you may have learned the following saying: "When two vowels go walking, the first does the talking." If we were to apply this rule to heterozygous genes, we would be most accurate if we said, "When two genes go walking, the ____ one does the talking."

- a. masked
- b. recessive
- c. dominant
- d. typical

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

32. Which type of allele is ignored when found in a heterozygous gene pair?

- a. masked
- b. dominant
- c. typical
- d. recessive

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: Mechanisms of heredity

KEYWORDS: Bloom's: Remember

33. Maricella was born several days ago, and her pediatrician has observed that she has almond-shaped eyes and a fold over her eyelids. In addition, her head, neck, and nose are smaller than other babies of her birth weight. With which of the following conditions would Maricella most likely be diagnosed?

- a. Down syndrome
- b. Turner's syndrome
- c. Klinefelter's syndrome
- d. Phenylketonuria

ANSWER: a

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

34. Maricella was born several days ago, and her pediatrician has observed that she has almond-shaped eyes and a fold over her eyelids. In addition, her head, neck, and nose are smaller than other babies of her birth weight. It is most likely that Maricella has an extra _____ chromosome.

- a. 4th
- b. 9th
- c. 17th
- d. 21st

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Apply

35. Which maternal characteristic is most strongly associated with giving birth to a baby with Down syndrome?

- a. elevated lead in the mother's breast milk
- b. consumption of alcohol during pregnancy
- c. higher maternal age
- d. maternal exposure to mercury by the baby immediately after birth

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Remember

36. Which statement supports the proposition that the presence of an X chromosome appears to be necessary for life?

- a. X-chromosomal genotypes are expressed as consistent phenotypes at a rate of around 85%, while Y-chromosomal genotypes are expressed as consistent phenotypes at a rate of only about 15%.
- b. The X chromosomes are expressed far earlier in the prenatal period than the Y chromosomes.
- c. There are no chromosomal disorders wherein a person has only Y chromosomes.

d. Most of the lethal chromosomal disorders, including Tay-Sachs disease and cystic fibrosis, are located on the Y chromosome.

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Analyze

37. Traits that are controlled by _____ genes are usually "either/or" phenotypes (e.g., being color blind *or* not being color blind, having a blood clotting disorder *or* not having a blood clotting disorder).

- a. polymorphic
- b. mutated
- c. multiple
- d. single

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Remember

38. If a physician informed you that your speech disorder was the result of problems on chromosomes 4, 7, and 15, you would rightly conclude that the disorder is always classifiable as

- a. recessive.
- b. polygenic.
- c. dominant.
- d. sex-linked.

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

39. When many genes work together to determine a characteristic, there may be a large range of phenotypes that are expressed. Why is this?

- a. Because each allele of the genes may be differently structured, leaving a large variety of outcomes.
- b. Because there are many combinations of dominant and recessive genes that can lead to various levels of the characteristic being expressed.
- c. Because each gene is contributed to by a different chromosome, bringing more phenotypical variety into the characteristic.
- d. Because the genes all work to "cancel" each other out, leaving only one "odd" gene to express the phenotype.

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

40. David and Katie have always been close. In fact, they are so close that they shared the womb when their mother was pregnant with them. Given the information that you have already been given in this question, which of the following can you state conclusively?

- a. David and Katie are monozygotic twins.
- b. David and Katie are conjoined twins.

- c. David and Katie are dizygotic twins.
- d. David and Katie share 25% of their genotype.

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

41. Monozygotic is to ____ as dizygotic is to ____.
- a. heterozygous; homozygous
 - b. identical; fraternal
 - c. homozygous; heterozygous
 - d. fraternal; identical

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

42. Which of the following circumstances would indicate the greatest level of heritability of a trait?
- a. Francois performs as well in school as the siblings with whom he was raised, even though he was adopted and is not genetically related to them.
 - b. D'artagnan prefers to watch movies on television, while his parents prefer to watch movies at a movie theater.
 - c. Luigi and his siblings are all about the same height.
 - d. Mario's results on a personality test are far more similar to his biological parents than they are to his adopted parents.

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

43. Which of the following properties is widely accepted with regard to the relationship between genes and behaviors?
- a. Genes actually change and break down as we age, which is why our actions change so dramatically as we get older.
 - b. Environmental influences typically make children within the family very similar to each other.
 - c. Genes cannot influence the kind of environment to which a person is exposed.
 - d. Heredity and environment interact dynamically throughout development.

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Remember

44. The idea that genotypes are not the only things that control traits reflects the fact that
- a. dizygotic twins are virtually genetically identical while fraternal twins are not.
 - b. each genotype can produce a variety of phenotypes, depending on the environment in which a person lives.
 - c. recessive genes are more commonly expressed than dominant genes, especially in cases of polygenic inheritance.
 - d. the environment has little impact on behavior, as has been demonstrated in the results of the nature-nurture question.

ANSWER: b

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

45. The fact that a person with phenylketonuria can essentially mute the effects of their disease by controlling their dietary intake of a specific amino acid is an example of which of the following principles?

- a. Heredity and the environment interact dynamically throughout development.
- b. Genes can influence the environment to which a person is exposed.
- c. Development is multidirectional in its nature.
- d. Environmental influences typically make children within a family different.

ANSWER: a

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

46. Marvin has an exceptional amount of skill in athletics. Specifically, he is an extraordinary hockey player. Throughout his life he has chosen circumstances where he would be exposed to peers who also enjoyed hockey, and this has helped him develop opportunities to develop his talent. Marvin has been engaging in

- a. genotyping.
- b. phenotyping.
- c. niche-picking.
- d. heritizing.

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

47. ____ refers to the process of deliberately seeking environments that fit one's heredity.

- a. Niche-picking
- b. Context-selection
- c. Base-rating
- d. Polygenic inheritance

ANSWER: a

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Remember

48. Jack and Jill are twins. Because he is a boy, Jack's parents encourage him to run. However, they discourage Jill from engaging in athletic activity. As a result, Jack is much faster at running up a hill than Jill. The difference in Jack and Jill's behavior is best explained by

- a. nonshared environmental influences.
- b. active gene-environment relations.
- c. polygenetic effects.
- d. niche-picking.

ANSWER: a

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

49. Although identical twins share 100% of their genetic code and are often similar, they are never truly "identical." Which of the following explains these differences?

- a. heterozygous chromosomal deviations
- b. active gene-environment relationships
- c. post-natal genetic mutations
- d. nonshared environmental influences

ANSWER: d

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

50. Larry and Ira are brothers who are two years apart in age. Larry went to one public school for his grade school years, but before Ira could go to that school the district underwent a rezoning. Ira, therefore, ended up going to a different school with less-qualified teachers and fewer resources. As a result, Larry tended to perform much better in school than Ira did.

This example demonstrates the influence of

- a. active gene-environment relationships
- b. niche-picking
- c. nonshared environmental influences
- d. asynchronous environmental genotypes

ANSWER: c

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Apply

51. The time between conception and birth is called the ____ period.

- a. prenatal
- b. neonatal
- c. postnatal
- d. teratogenic

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Remember

52. Which of the following is the correct order of the stages of pregnancy?

- a. period of the embryo, period of the fetus, period of the zygote
- b. period of the zygote, period of the embryo, period of the fetus
- c. period of the fetus, period of the zygote, period of the embryo
- d. period of the embryo, period of the zygote, period of the fetus

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Remember

53. Out of the 200–500 million sperm cells that are released during an ejaculation, only ____ complete the short journey up the Fallopian tubes to where an egg is waiting to be fertilized.

- a. half
- b. a few thousand
- c. a few hundred
- d. a few hundred thousand

ANSWER: c

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Remember

54. Jeanette and her husband Eric have recently engaged in sexual intercourse. After this activity was completed, an egg in Jeanette's Fallopian tube was fertilized by a sperm cell that was released by Eric. The result is a(n) ____, which marks the beginning of pregnancy.

- a. zygote
- b. embryo
- c. fetus
- d. blastocyst

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Apply

55. Despite the fact that a human female has a normal pregnancy duration (or gestational period) of 38 weeks, people often refer to pregnancy as a 40-week event. Why is this?

- a. Because the heightened influence of teratogens in the world today has actually extended the duration of pregnancy from conception to delivery.
- b. Because pregnancy usually begins two weeks after a woman's menstrual period, and that is the time from which the beginning of pregnancy is measured.
- c. Because the duration of pregnancy actually gets longer as a woman ages, and it ranges from 38 to 42 weeks. 40 weeks is the average, so that is what people say.
- d. Because physicians want to allow for a two-week "window" at the end of the pregnancy so that women do not become concerned if they have not delivered by the end of the 38th week.

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Analyze

56. Which of the following structures eventually develops into a baby?

- a. the amniotic sac
- b. the germ disc
- c. the trophoblast
- d. the blastocyst

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Remember

57. Pregnant Patty's body is currently experiencing the event that triggers hormonal changes that will prevent further menstruation. This event is called

- a. implantation.
- b. conception.
- c. dilation.
- d. effacement.

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Apply

58. Lucy is currently expecting her first child, and she is talking to her friend Dale, who does not have any children of his own. Dale knows very little about human development, and asks Lucy how the food she eats gets to the developing child. Lucy smiles and shakes her head, before saying,

- a. The uterus is responsible for doing all of that. Why do you think that is where the baby grows?
- b. The germ disc separates me from the child, but has a small hole in it that allows vitamins and nutrients to get to the child.
- c. The umbilicus is responsible for taking food out of my system and delivering it directly into the baby's stomach.
- d. There is a structure called the placenta that helps my body exchange nutrients and waste with the baby.

ANSWER: d

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Apply

59. Once a zygote implants itself in the uterine lining, it officially becomes a(n) ____.

- a. embryo
- b. baby
- c. fetus
- d. germ disc

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Remember

60. Brad and Angelina take their daughter Anniston to the zoo, and are looking at a bunch of different animals. Anniston, who has recently been learning about human development, sees a ____ and says, "Mommy, Daddy! That looks just like a human embryo in its third week of development!"

- a. spider

- b. salamander
- c. aardvark
- d. prairie dog

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Apply

61. According to the weatherman on the local news, the outside temperature today will reach 102 degrees, with a possible heat index of 110 degrees. Thankfully for Quanetta, who is pregnant with her second child, the _____ will maintain a constant temperature for her unborn baby.

- a. uterus
- b. amniotic fluid
- c. umbilical cord
- d. placenta

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Apply

62. The _____ is a structure that contains veins and arteries and connects a developing child to the placenta.

- a. umbilical cord
- b. amnion
- c. germ disc
- d. blastocyst

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Remember

63. Of the three prenatal stages of development which is by far the longest?

- a. the period of the zygote
- b. the period of the embryo
- c. the period of the fetus
- d. the period of the neonate

ANSWER: c

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Remember

64. Mel is at the obstetrician's office with his girlfriend Denise, who is pregnant with their child. They have just started the ninth week of the pregnancy, and the doctor explains to them that the unborn child's brain has developed distinct structures and is already beginning to regulate certain body functions. Based on what you know about prenatal development, you know that the period of the _____ has just begun.

- a. zygote
- b. embryo
- c. umbilicus
- d. fetus

ANSWER: d

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Apply

65. Marsha's doctor informs her that her child is just entering the longest period of prenatal development. About how long has Marsha been carrying her unborn child?

- a. 1 day
- b. 3 weeks
- c. 9 weeks
- d. 28 weeks

ANSWER: c

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Apply

66. Why is it that 22 weeks is considered the earliest "age of viability" for an unborn child?

- a. Because this is the age by which the child's systems are functioning well enough to potentially sustain life outside of the mother's body.
- b. Because it is not until this age that the unborn child's brain begins developing.
- c. Because this is the age when the child's sex is determined, and when appropriate genitals begin to form.
- d. Because this is the age after which teratogens can no longer impact the baby.

ANSWER: a

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Analyze

67. The age of ____ is defined as the age at which a fetus can survive if it must be born because most of its bodily systems function adequately. It typically occurs 22 to 28 weeks into the pregnancy.

- a. zygotic intent
- b. viability
- c. plasticity
- d. continuity

ANSWER: b

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Remember

68. Which of the following types of sensory input are most salient to a fetus?

- a. visual input
- b. tactile input
- c. olfactory input
- d. auditory input

ANSWER: d

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Remember

69. Which of the following is NOT one of the three types of general risk factors identified by scientists for pregnant women and their babies?

- a. nutrition
- b. the mother's age
- c. drugs
- d. stress

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Remember

70. Charlotte has just found out that she is pregnant, and she is thrilled about the news. She is concerned, however, because although she knows that her weight and body will change over the next several months, she wants those changes to be healthy. Which of the following advice should you give?

- a. Your child will need more and more as she develops, so there is no amount of weight gain that is unhealthy during pregnancy.
- b. You should increase your calorie intake by 10% to 20% to meet the needs of the baby.
- c. You are truly eating for two now, so you should be eating twice as much as normal.
- d. As long as you take prenatal vitamins every day, there is no real need for you to eat more than usual.

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Remember

71. A pregnant woman not getting enough healthy food, vitamins, and nutrients may put her baby at risk for all but which of the following?

- a. premature birth
- b. effects to the child's nervous system
- c. increased risk of later life anorexia
- d. vulnerability to illness

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Remember

72. Maternal stress is most likely to negatively impact a developing embryo/fetus when that stress is
- a. intermittent and extreme.
 - b. intermittent and moderate.
 - c. prolonged and extreme.
 - d. prolonged and moderate.

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Analyze

73. Which of the following describes one of the reasons why stress hormones that are elevated in women who are highly anxious during pregnancy can negatively impact the baby?
- a. Stress-related hormones can block the flow of oxygen to the baby.
 - b. Stress-related hormones absorb essential vitamins and nutrients that are essential for healthy development.
 - c. Stress-related hormones increase the chances of the baby developing a stress-related mental illness later in life.
 - d. Stress-related hormones delay the onset of uterine contractions, which can lead to babies being born well after their due date.

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Analyze

74. Your authors point out that teenage women have a greater chance of having problems during their pregnancy, labor, and delivery than pregnant women in their 20s. They suggest that this is MAINLY because
- a. pregnant teenagers are more likely to be economically disadvantaged and lack good prenatal care.
 - b. pregnant teenagers are more likely to smoke cigarettes during pregnancy.
 - c. pregnant teenagers are more likely to drink alcohol during pregnancy.
 - d. pregnant teenagers are less likely to get adequate sleep and rest during pregnancy.

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Analyze

75. In general, pregnancies are most likely to proceed normally when the mother is between the ages of 20 and ____ years.
- a. 25
 - b. 30
 - c. 35
 - d. 40

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Remember

76. Alissa is a 41-year-old, married, professional woman who has just found out that she is pregnant with her third child. According to your textbook, which of the following conditions is her baby at higher risk of due to Alissa's age?

- a. Down syndrome
- b. Phenylketonuria
- c. ADHD
- d. neurofibromatosis

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Apply

77. Any agent that interferes with normal prenatal development is a(n) ____.

- a. fetalytic
- b. teratogen
- c. ototoxin
- d. carcinogen

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Remember

78. In Germany in the 1950s, the effects of teratogens gained widespread attention when pregnant women who took ____ to help them sleep gave birth to babies with deformations of their heads, legs, hands, and/or fingers. Over 7,000 babies were harmed by this drug before it was removed from the market.

- a. phenteramine
- b. aspasneet
- c. thalidomide
- d. paregoric

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Remember

79. Whose mother most likely took thalidomide while pregnant because she was unaware its potential to harm her baby?

- a. Dean, who has a heart defect
- b. Martin, who has deformed arms and legs
- c. Jerry, who is deaf
- d. Lewis, has a severe intellectual disability

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Apply

80. Young Marvin, just a few months of age, is growing at a slower rate than would be expected for his age. He has heart problems and a slightly misshapen face, and is often very fussy and difficult to soothe. Which of the following substances did his mother likely ingest on a regular basis during her pregnancy?

- a. nicotine
- b. aspirin
- c. alcohol
- d. cocaine

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Apply

81. Why is there no conclusive evidence that there is a specific amount of alcohol a pregnant woman can drink without causing harmful effects to her child?

- a. Because there is no way to know exactly how much alcohol is in any given drink, and thus it is impossible to accurately gauge the amount of alcohol being consumed.
- b. Because the research has concluded that even very small amounts of alcohol on a single occasion are certainly damaging to an unborn child.
- c. Because the safe level of consumption is probably not the same for all women, as a result of heredity and health factors.
- d. Because alcohol is so often taken with other drugs that it is impossible to determine how much of it would be safe to consume.

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Analyze

82. If a woman smokes cigarettes or other forms of tobacco during pregnancy, which of the following effects is MOST likely to occur?

- a. They are more likely to give birth to a child with cystic fibrosis or sickle cell anemia.
- b. They are more likely to have a child who is born in the "breech" position, thus complicating their delivery and increasing the odds of requiring a Caesarian section procedure.
- c. They are more likely to have a child born suffering from spina bifida
- d. They are more likely to suffer a miscarriage or to have a child born with a lower birth weight

ANSWER: d

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Remember

83. Although an unborn child may be protected from many different maternal illnesses, such as colds and some strains of the flu, other illnesses can be extremely harmful to the baby. Which of the following is NOT listed as one of those illnesses?

- a. toxoplasmosis
- b. cytomegalovirus
- c. otitis externa

d. chlamydia

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Remember

84. Wendy is pregnant with her son, who will be named William. Wendy has been diagnosed with a specific illness which she knew she had prior to getting pregnant. Although there is no way to know for sure if the illness will harm William during his development, the most likely symptoms of any such harm would include damage to his central nervous system, his teeth, and his bones. From which of the following illnesses does Wendy suffer?

- a. AIDS
- b. rubella
- c. syphilis
- d. genital herpes

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Apply

85. Although the risk of using a cellular telephone during pregnancy is, as of yet, unclear, your authors do note that there is one way in which using cell phones represents an enormous risk for both pregnant women and their unborn children. That is:

- a. using cell phones while exercising.
- b. using cell phones while driving.
- c. using cell phones while cooking.
- d. sleeping next to a charging cell phone.

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Remember

86. Why is it that environmental teratogens may be even more treacherous to deal with than other factors such as maternal illnesses or the use of drugs during pregnancy?

- a. Because environmental teratogens are widely understood to be the most serious in their potential to damage unborn children.
- b. Because environmental teratogens are, in fact, unavoidable.
- c. Because people have given up trying to "live clean" and avoid exposure to environmental teratogens.
- d. Because people are so often unaware of environmental teratogens in their surroundings.

ANSWER: d

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Analyze

87. The key lesson learned by the fact that thalidomide showed no impact when tested on pregnant rats but led to birth

defects in humans is that

- a. teratogens impact different genotypes differently.
- b. teratogens impact specific aspects of development.
- c. teratogen effects may not emerge until later in life.
- d. teratogen effects are the same regardless of the time when the individual is exposed.

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.03 - What general principles affect the ways that prenatal development can be harmed?

KEYWORDS: Bloom's: Analyze

88. The fact that exposure to a teratogen during the period of the zygote often leads to a spontaneous abortion (miscarriage) while the same exposure during the period of the fetus can lead to minor defects of bodily structures or systems demonstrates that

- a. the impact of teratogens depends on the genotype of the organism
- b. the impact of teratogens changes the course of prenatal development
- c. different teratogens affect different aspects of prenatal development
- d. the impact of a teratogen depends on the amount, or dose, of the teratogen

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.03 - What general principles affect the ways that prenatal development can be harmed?

KEYWORDS: Bloom's: Analyze

89. The fact that ingestion of nicotine can lead to an increased risk of miscarriage or low birth weight while contracting rubella can cause aberrant development of the eyes, ears, and heart demonstrates that

- a. the impact of teratogens depends on the genotype of the organism.
- b. the impact of teratogens changes of the course of prenatal development.
- c. each teratogen affects a specific aspect (or aspects) of prenatal development.
- d. the impact of a teratogen depends on the amount, or dose, of the teratogen.

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.03 - What general principles affect the ways that prenatal development can be harmed?

KEYWORDS: Bloom's: Analyze

90. What was the most critical lesson about teratogens learned from studies on the use of the drug DES by pregnant women?

- a. Sometimes what appear to be teratogens actually are harmless drugs.
- b. Infants in the late fetal period appear to be the most at risk for impact from drug-related teratogens.
- c. Sometimes the effects of teratogens are not apparent until long after exposure.
- d. Females appear to be at much greater risk from teratogens.

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.03 - What general principles affect the ways that prenatal development can be harmed?

KEYWORDS: Bloom's: Analyze

91. In which type of prenatal testing is a grainy picture of the fetus generated that allows for identification of the child's position and, at a certain point, its sex?

- a. amniocentesis
- b. chorionic villus sampling
- c. ultrasound
- d. transvaginal magnetic resonance imaging

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Remember

92. Which of the following is a relative limitation of the use of an ultrasound?

- a. It requires an instrument so large that is impractical to have in most physicians' offices.
- b. It is notoriously unreliable at accurately identifying the sex of the child prior to birth.
- c. It carries a 1% chance of inducing a miscarriage.
- d. It gives a very grainy picture that takes an expert's eyes to interpret.

ANSWER: d

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Remember

93. Randi is pregnant for the first time. Given the frequency with which twins and triplets have occurred in her family, she is understandably concerned that she will have a multiple-birth pregnancy. If you were her gynecologist, which of the following prenatal tests would you recommend to either confirm or rule out the number of babies she is carrying?

- a. quadruple maternal blood test
- b. amniocentesis
- c. chorionic villus sampling
- d. ultrasound

ANSWER: d

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Apply

94. If you were most interested in knowing the genotype of your unborn baby, perhaps to find out if there were specific genetic or chromosomal problems, which prenatal test would be most appropriate?

- a. standard ultrasound
- b. maternal glucose test
- c. amniocentesis
- d. 4-D color ultrasound

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Remember

95. If you are pregnant and want to get a prenatal test to assess various aspects of your unborn child's well-being, which of the following should you avoid if you suffer from trypanophobia (or the fear of needles)?

- a. amniocentesis
- b. standard ultrasound
- c. 4-D color ultrasound
- d. fetal cardiac monitoring

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Apply

96. A procedure that involves removing a sample of tissue from part of the placenta that is done 9 to 12 weeks into a pregnancy is called

- a. amniocentesis.
- b. chorionic villus sampling.
- c. ultrasound.
- d. maternal glucose test.

ANSWER: b

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Remember

97. Why would a person be naturally concerned about undergoing an amniocentesis or chorionic villus sampling during their pregnancy?

- a. Because they carry a 1–2% risk of miscarriage.
- b. Because the results from both tests take two to four weeks to obtain.
- c. Because they are both rather painful, while an ultrasound is noninvasive and painless.
- d. Because they both carry an unacceptable rate of “false positive” results.

ANSWER: a

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Analyze

98. Troy is very interested in the field of fetal medicine. Given this, he would most likely be fascinated by a book titled

- a. *Afterbirth Care and You.*
- b. *The Benefits of Healthy Eating Before Pregnancy.*
- c. *Fixing Birth Defects Before Birth.*
- d. *The Importance of Childhood Inoculations.*

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Applies

99. What is the current status of the use of genetic engineering to help treat illnesses that are caused by defective genes?
- a. Genetic engineering is still illegal in the United States, though other countries are using it on a routine basis.
 - b. Genetic engineering has been found useful for metabolic disorders, but only when employed prior to the fetal stage of prenatal development.
 - c. Some successful applications of genetic engineering have been seen with older children.
 - d. Genetic engineering has never been successfully used in animals or human beings, but the theories are sound and research is ongoing.

ANSWER: c

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Remember

100. How many stages of labor are there?

- a. 1
- b. 3
- c. 5
- d. 7

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: Stages of labor - Stages of labor

KEYWORDS: Bloom's: Remember

101. Felicia is at the end of her pregnancy, and she is now in labor. She has been having contractions for about 18 hours, and her cervix is slowly dilating to approximately 10 centimeters. Which stage of labor is Felicia currently in?

- a. Stage one
- b. Stage two
- c. Stage three
- d. Stage four

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Apply

102. Roz is in the process of giving birth to her daughter. The baby has made its way from the uterus into the vagina, and is currently being expelled from Roz's body as Roz contracts her abdominal muscles. In which stage of labor is Roz?

- a. Stage one
- b. Stage two
- c. Stage three
- d. Stage four

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Apply

103. Which of the stages of labor is the briefest, and typically involves only a few "pushes" to expel the placenta?

- a. Stage nine

- b. Stage seven
- c. Stage five
- d. Stage three

ANSWER: d

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Remember

104. Why would it be fair to say that physicians Grantly Dick-Read and Ferdinand Lamaze revolutionized approaches to childbirth?

- a. Because they advocated for a more natural approach to childbirth rather than viewing it as a "medical event."
- b. Because together they developed the epidural procedure, which significantly reduced a woman's pain during labor.
- c. Because they promoted the use of midwives and doulas over physicians and nurses to assist mothers in labor
- d. Because they developed the "fetal monitor," which allowed for physicians to note when a child was in distress during labor.

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.02 - What are the "natural" ways of coping with the pain of childbirth?

KEYWORDS: Bloom's: Analyze

105. Wilma is afraid of the pain involved in delivering her baby. Are childbirth classes likely to help her?

- a. Yes, because women who take these courses may experience less tension, and thus may have less pain during the delivery.
- b. Yes, because women who take these courses qualify for painkilling medications they would not usually receive.
- c. No, because childbirth courses only make people more knowledgeable about the birthing process and can have no effect on pain.
- d. No, because individuals who know most about the birthing process experience the most pain.

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.02 - What are the "natural" ways of coping with the pain of childbirth?

KEYWORDS: Bloom's: Apply

106. Which of the following is NOT one of the physical changes that a woman is likely to experience after pregnancy?

- a. Her breasts may begin to produce milk.
- b. Her uterus becomes smaller.
- c. Her levels of female hormones may drop.
- d. Her weight will return to normal within a week.

ANSWER: d

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.03 - What adjustments do parents face after a baby's birth?

KEYWORDS: Bloom's: Remember

107. Cynthia is experiencing the "baby blues," which involves feelings of irritation and resentment, accompanied by crying spells. If she has the typical "baby blues" how long can she expect them to last?

- a. three months

- b. five months
- c. one week
- d. one month

ANSWER: c

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.03 - What adjustments do parents face after a baby's birth?

KEYWORDS: Bloom's: Remember

108. For 10 to 15% of new mothers, the baby blues extend into months of irritability, feelings of low self-worth and apathy, and sleep and appetite disturbances. This condition, called postpartum _____, can influence a child's development if it persists.

- a. psychosis
- b. depression
- c. anxiety
- d. couvade

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.03 - What adjustments do parents face after a baby's birth?

KEYWORDS: Bloom's: Remember

109. Postpartum depression

- a. occurs in about 50 percent of new mothers.
- b. is more common following planned pregnancies than unplanned pregnancies.
- c. is a purely psychological phenomenon (i.e., has no physiological basis).
- d. risk may be reduced via breast-feeding.

ANSWER: d

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.03 - What adjustments do parents face after a baby's birth?

KEYWORDS: Bloom's: Remember

110. While Jonah was making his way through his mother's birth canal, his umbilical cord got wrapped around his neck. Thankfully this situation was resolved before Jonah developed _____, which would have involved a disruption of oxygenated blood to his brain.

- a. hypoxia
- b. cerebral atrophy
- c. aneurysm
- d. hemorrhage

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Apply

111. Which of the following conditions, seen in pregnant women, involves high blood pressure, proteins in the urine, and swelling in the extremities due to fluid retention?

- a. cephalopelvic disproportion
- b. preeclampsia
- c. irregular position

d. prolapsed umbilical cord

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Remember

112. Nora was born just after the 32nd week of pregnancy. According to your authors, she would be referred to as a _____ baby.

- a. preeclampsia
- b. low birth weight
- c. preterm
- d. viability

ANSWER: c

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Apply

113. If a child experiences many birth complications, and later experiences different types of family adversity, she is at an increased risk for developing _____.

- a. schizophrenia
- b. Down syndrome
- c. sarcoidosis
- d. obsessive-compulsive disorder

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Remember

114. Born 39 weeks after conception, Sasha weighs in at just under two pounds. Given this information, Sasha is best defined as

- a. full-term and normal birth weight.
- b. preterm and normal birth weight.
- c. preterm and very low birth weight.
- d. full-term and extremely low birth weight.

ANSWER: d

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Apply

115. In order for a child to be described as having low birth weight, (s)he would have to weigh:

- a. less than 2,500 grams but more than 1,500 grams.
- b. less than 1,500 grams but more than 1,000 grams.
- c. less than 3,000 grams but more than 2,000 grams.
- d. less than 1,000 grams but more than 500 grams.

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Remember

116. Which of the following appears to be the most important in enhancing long-term outcomes for a small-for-date baby?
- having a supportive and stimulating home environment
 - minimizing his/her exposure to environmental allergens
 - delaying vaccinations until after the child is two years of age
 - making sure that the child spends at least three weeks in an incubator

ANSWER: a

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Analyze

117. Infant mortality rate is defined as the percentage of infants who die
- before birth.
 - during birth.
 - before their first birthday.
 - before their second birthday.

ANSWER: c

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Remember

118. Of the following countries, which has the highest rate of infant mortality?
- The United States of America
 - Turkey
 - Japan
 - The Netherlands

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Remember

119. Why is it that the United States has among the highest rates of infant mortality despite having such widely available medical care?
- Because the United States does not mandate prenatal testing for all pregnant women.
 - Because the United States has more babies with low birth weight than most other developed nations.
 - Because the United States has the highest rate of pregnant women who abuse alcohol and drugs during their pregnancy.
 - Because the United States has the greatest level of toxins in its water and food supplies, thus leading to more prenatal complications.

ANSWER: b

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Analyze

120. ____ involves mixing sperm and egg cells together in a Petri dish, and then placing several fertilized eggs inside the mother's uterus. The hope is that they will become implanted in the uterine wall and lead to pregnancy.

- a. Gamete intrafallopian transfer
- b. Intracytoplasmic sperm injection
- c. Zygote intrafallopian transfer
- d. In-vitro fertilization

ANSWER: d

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Remember

Completion

121. A group of compounds that provides a specific set of biochemical instructions for development is a(n) _____.

ANSWER: gene

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Understand

122. Steve is on a first date with Valerie, who is very enamored with his beautiful blue eyes. Steve's _____, or the physical expression of his genetic code, may have guaranteed him a second date!

ANSWER: phenotype

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.01 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Understand

123. When a phenotype reflects the combined activity and influence of many separate genes, the pattern is known as _____ inheritance.

ANSWER: polygenic

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Understand

124. Monozygotic twins are more commonly referred to as _____ twins, while dizygotic twins are known as _____ twins.

ANSWER: identical; fraternal

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Understand

125. The process of deliberately seeking environments that are consistent with one's heredity is called _____.

ANSWER: niche-picking

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.01.02 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Understand

126. If you wanted to be very specific, you would say that a tiny cluster of cells at the center of a zygote, called the _____, is what eventually develops into the baby.

ANSWER: germ disc

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

KEYWORDS: Bloom's: Understand

127. The sac in which an embryo rests during the second stage of prenatal development is called the _____.

ANSWER: amnion

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Understand

128. During the period of the _____, the longest stage of prenatal development, the infant reaches the age of viability. After this point in the pregnancy, the child would be capable of surviving outside of the mother's body.

ANSWER: fetus

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.03 - When do body systems begin to function well enough to support life?

KEYWORDS: Bloom's: Understand

129. Increased maternal age brings a heightened risk of certain difficulties, both with the pregnancy and for the child. Specifically, when the mother is pregnant after the age of 40 there is an enhanced risk of the child being born with _____, a chromosomal disorder associated with delayed physical, cognitive and social development.

ANSWER: Down syndrome

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.01 - How is prenatal development influenced by a pregnant woman's age, her nutrition, and the stress she experiences?

KEYWORDS: Bloom's: Understand

130. Pregnant women who regularly consume quantities of alcoholic beverages may give birth to babies with _____ spectrum disorder.

ANSWER: fetal alcohol

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Understand

131. If a pregnant woman consumes more than limited amounts of _____ on a regular basis, her child may be born with a lower birth weight and may have decreased muscle tone.

ANSWER: caffeine

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect

prenatal development?
KEYWORDS: Bloom's: Understand

132. A standard part of prenatal care in the United States is the use of _____, in which sound waves are used to generate a picture of the fetus.

ANSWER: ultrasound

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Understand

133. Of the three types of prenatal screenings discussed in the textbook, _____ requires the longest wait for results because the genetic material cannot be evaluated until enough cells have reproduced for analysis.

ANSWER: amniocentesis

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

KEYWORDS: Bloom's: Understand

134. The third stage of childbirth (labor) involves the expulsion of the afterbirth, also called the _____.

ANSWER: placenta

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Understand

135. Ferdinand _____ was one of two physicians who revolutionized childbirth by advocating for a more "natural," or prepared childbirth and saw it as a life event to be celebrated rather than a medical event to be endured.

ANSWER: Lamaze

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.02 - What are the "natural" ways of coping with the pain of childbirth?

KEYWORDS: Bloom's: Understand

136. _____ refers to a birth complication in which umbilical blood flow is disrupted and the infant does not receive adequate oxygen.

ANSWER: Hypoxia

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Understand

137. A child who is born at a weight of less than 1000 grams would be referred to as having _____ birth weight.

ANSWER: extremely low

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.04 - What are some complications that can occur during birth?

KEYWORDS: Bloom's: Understand

138. Low birth weight can usually be prevented by good _____ care.

ANSWER: prenatal

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Understand

139. A reproductive technique that is used over 140,000 times and produces more than 55,000 babies each year in the United States is _____.

ANSWER: in-vitro fertilization

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Understand

140. A movement to improve the human species by letting only specific people with desirable characteristics procreate is called _____.

ANSWER: eugenics

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.05 - What contributes to infant mortality in developed and less developed countries?

KEYWORDS: Bloom's: Understand

Essay

141. Your textbook notes the following three key concepts in biology. For each one, provide a potential real-life example illustrating each of these principles:

- ☐ "Heredity and environment interact dynamically throughout development."
- ☐ "Genes can influence the kind of environment to which a person is exposed."
- ☐ "Environmental influences typically make children within a family different."

ANSWER: Students should provide feasible examples of each of the three concepts noted above. An example of each, some noted by the textbook, is provided below:

- a. If a child receives the recessive homozygous trait for the disease phenylketonuria from his or her parents, they will be born with PKU. If the child is tested at birth and the disease is identified, the parents can control and essentially eliminate the effects of PKU by monitoring and limiting the child's intake of the amino acid phenylalanine. Later, when the child is old enough to control this dietary issue on his/her own, the disease can continue to be muted.
- b. If a child is born with the genotype to grow to a tall height and to develop that phenotype early, the child may opt to spend more time playing basketball, volleyball, or other athletics that "reward" height. The person who selects environments that are consistent with their genetics is engaging in niche-picking.
- c. As much as parents may like to think that they treat their children equally, it is more likely that children are parented with differences, some subtle and some large. If a parent recognizes different skills, tendencies, or characteristics in their children, they may interact with the children in ways that encourage and promote those different tendencies. Thus, children who are raised in the same home may have different environmental influences that promote differences between them.

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.1.2 - How is children's heredity influenced by their environment?

KEYWORDS: Bloom's: Analyze

142. Jeanette is concerned about getting pregnant with her husband, because she is afraid that she will pass on her recessive gene for a sickle cell disease and that her child will develop this condition. Based on what you know about the

principles of dominant and recessive inheritance, what would you advise Jeanette?

ANSWER: There are several ways a student can go with this essay, but the primary theme should note that (a) the illness requires two recessive genes in order to be expressed, so it is not just her genetic history that determines whether the child will have sickle cell disease; (b) even if she and her husband are both carriers of the gene it is more likely that the child will not develop the illness unless both she and her husband actually have sickle cell disease themselves, and (c) as long as either she or her husband contribute an allele for normal red blood cells, there is no way that their child will develop the sickle cell disease.

REFERENCES: 2.1 In the Beginning: 23 Pairs of Chromosomes

LEARNING OBJECTIVES: ESSE.KAIL.17.02.1.1 - What are chromosomes and genes? How do they carry hereditary information?

KEYWORDS: Bloom's: Analyze

143. List the three stages of prenatal development in the correct order, and note how long each stage lasts. Indicate the major event that indicates the beginning and end of each stage. Finally, discuss the major events that take place within each stage.

ANSWER:

- a) The period of the zygote begins with conception (fertilization of an egg cell by a sperm cell) and ends with implantation into the lining of the uterus. This first stage lasts for the first two weeks of the pregnancy. The major events are (1) cell growth from a one-cell zygote to an organism comprised of several hundred cells, and (2) a travelling of the zygote from the top of the Fallopian tube into the uterus.
- b) The period of the embryo begins at the implantation of the zygo into the lining of the uterus, and ends at the end of the eighth week of pregnancy. There is no specific “event” that marks the transition from the period of the embryo to the period of the zygote, but this second stage marks weeks 2 through 8 of the prenatal period. Body structures and internal organs begin to develop during this period, including the heart, brain, nervous system, arms, legs, head, eyes, and lungs.
- c) The period of the fetus has no event that begins it, but the transition from embryo to fetus occurs at the end of the 8th week of pregnancy. The period ends with childbirth at around the 38th week. (Students may note that this occurs at the 40th week of pregnancy, and individual instructors should decide whether or not to award credit for this answer). All additional prenatal development occurs during this stage, the sex of the baby will be evident in this stage, and viability will be achieved starting at 22 weeks. Movement and regular prenatal activity will increase and become intense, and sensory experiences for the fetus become possible.

REFERENCES: 2.2 From Conception to Birth

LEARNING OBJECTIVES: ESSE.KAIL.17.02.02.01 - What happens to a fertilized egg in the first 2 weeks after conception?

ESSE.KAIL.17.02.02.02 - When do body structures and internal organs emerge in prenatal development?

KEYWORDS: Bloom's: Analyze

144. Although there are many maternal illnesses that the placenta can protect the unborn child from, several can have teratogenic effects on the child's development. List five maternal illnesses that can disrupt normal prenatal development, and comment on the potential consequences of each condition.

ANSWER: The answer to this question can be found by examining Table 2.4, which lists eight such diseases. They include AIDS, chlamydia, chicken pox, cytomegalovirus, genital herpes, rubella (German measles), syphilis, and toxoplasmosis. The accurate answer will list at least five from this list or from an individual instructor's presentation of teratogenic illnesses. It will also associate the correct possible fetal outcomes with each specific illness.

REFERENCES: 2.3 Influences on Prenatal Development; Table 2.4 “Teratogenic Diseases and Their Consequences”

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.02 - How can diseases, drugs, and environmental hazards affect prenatal development?

KEYWORDS: Bloom's: Analyze

145. The presence of teratogens during pregnancy creates the risk of problems in development. Your textbook identifies several principles that govern the relationship between teratogens and normal development. List and describe three of those principles.

ANSWER: There are five such principles presented by the textbook. The accurate answer will list three of the following five and will provide a discussion that adequately reviews the premise of each one:

- a. The impact of a teratogen depends on the genotype of the organism.
- b. The impact of teratogens changes over the course of prenatal development.
- c. Each teratogen affects a specific aspect (or aspects) of prenatal development.
- d. The impact of teratogens depends on the dose.
- e. Damage from teratogens is not always evident at birth but may appear later in life.

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.03 - What general principles affect the ways that prenatal development can be harmed?

KEYWORDS: Bloom's: Analyze

146. List three prenatal tests that might be offered to a pregnant woman, describe each test, and comment on the benefits and drawbacks of each test.

ANSWER: The student should note that ultrasound, amniocentesis, and chorionic villus sampling are all discussed in the textbook. Professors may choose to award credit for other answers (e.g., nuchal fold translucency screening) based on their own presentation of materials.

- a) Ultrasound – provides a picture of the unborn child by passing sound waves into the womb using a small instrument, is noninvasive, can determine the sex and position of the child, and can identify gross physical defects or multiple birth pregnancies. The picture produced is grainy and takes expertise to interpret.
- b) Amniocentesis – involves using a needle to draw out amniotic fluid for genetic analysis. Allows for the genotype of the child to be determined, but takes two weeks for results. Also increases the chance of miscarriage.
- c) Chorionic villus sampling – involves removing part of the placenta for analysis, and can be done much earlier than amniocentesis. Allows for certain genetic screening, but takes 7 to 10 days for results to be returned. Also increases the chance of miscarriage.

REFERENCES: 2.3 Influences on Prenatal Development

LEARNING OBJECTIVES: ESSE.KAIL.17.02.03.04 - How can prenatal development be monitored? Can abnormal prenatal development be corrected?

147. List the different stages (phases) of childbirth and note what occurs to start and end each stage.

ANSWER:

Stage 1 starts with uterine contractions that begin to push the baby out of the womb and toward the vagina (birth canal). The cervix, which is the opening between the uterus and vagina, begins to dilate and by the end of the stage will be near 10 centimeters in diameter. Throughout this stage the contractions become more intense and rhythmic. The child's head passing to the fully dilated cervix marks the end of stage 1.

Stage 2 begins when the baby passes through the cervix and into the vagina and is pushed out of the body when the mother uses her abdominal and vaginal muscles to "push" the baby out. Stage 2 ends when the baby is fully delivered.

Stage 3 begins with the child emerging from the vagina, and involves a few more pushes so that the placenta, or afterbirth, can be voided from the body. Once the placenta emerges, the third stage and the childbirth have ended.

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Analyze

148. Describe why in vitro fertilization and eugenics represent controversial issues in human development.

ANSWER: In vitro fertilization involves conception outside of the body (e.g., in a Petri dish). Ethical concerns include a parent's right to select specific traits and the high costs, which tend to not be covered by insurance. An additional concern is the question of who should be able to use these technologies, and should any restrictions exist? Additionally, students might discuss the fact that health insurance often does not pay for such treatments, and comment on the advisability of such policies.

Eugenics is an effort to improve humans by allowing only certain individuals to mate and pass along genes. Clearly there are several sociopolitical problems with such an effort. Astute students might link historical events such as the holocaust and its "ethnic cleansing" efforts to eugenics. Other historical events would also be appropriate to discuss.

REFERENCES: 2.4 Labor and Delivery

LEARNING OBJECTIVES: ESSE.KAIL.17.02.04.01 - What are the stages of labor and delivery?

KEYWORDS: Bloom's: Analyze