Prenatal Development

Study Guide

> **Directions:** Answer the following questions as you read the chapter. They will help you focus on the main points. Later, you can use this guide to review and study the chapter information.

Section 4–1: The Developing Baby

1. Briefly summarize the process of conception. Use the following terms in your summary: Fallopian tube, uterus, sperm, ovum.

   _____

   _____

   _____

2. Complete the following chart about the stages of prenatal development.

Stage	Time Span	Development That Occurs
	Conception to two weeks	
	Third through eighth week	
	Eighth or ninth week through birth	

3. Explain what each of the following is and describe the functions each performs.

   A. Amniotic fluid: _____

   _____

   B. Placenta: _____

   _____

   C. Umbilical cord: _____

   _____

(Continued on next page)

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4. Briefly summarize the changes that commonly occur in a woman during the first two months of pregnancy.

_____

_____

_____

5. What is "lightening" and when does it occur? _____

_____

_____

6. What is heredity? Name three characteristics that can be hereditary. _____

_____

_____

_____

7. Summarize the relationship between chromosomes, genes, genomes, and *DNA*. _____

_____

_____

_____

_____

_____

8. Explain the difference between dominant genes and recessive genes. _____

_____

_____

_____

_____

9. Which parent can provide either an X or Y chromosome to the baby? Which chromosome must come from this parent for the child to be female?

_____

10. Explain how each of the following occurs:

   A. Identical twins: _____

_____

   B. Fraternal twins: _____

_____

11. What is the only guaranteed way to avoid pregnancy? _____

(Continued on next page)

12. Complete the following chart about options for infertility.

Options	Description
Adoption	
	Sperm is injected into a woman's uterus.
	An egg from the woman is removed and fertilized with sperm from the man and then placed in the woman's uterus.
Ovum transfer	
Surrogate mother	

13. What are two reasons a couple who want children might not use these options? _____

_____

Section 4–2: Problems in Prenatal Development

14. Explain the difference between a miscarriage and a stillbirth. _____

_____

15. Identify each birth defect described below.

    A. Inability of body to process a common protein: _____

    B. Malformed red blood cells interfere with oxygen supply: _____

    C. Lack of a certain blood chemical makes body unable to process certain fats in the brain and nerve cells:

    _____

    D. Extra chromosome 21 typically results in mental retardation: _____

16. Describe the causes of birth defects within each category listed below.

    A. Environment: _____

    _____

    B. Heredity: _____

    _____

    C. Errors in chromosomes: _____

    _____

    D. Interaction of heredity and environment: _____

    _____

    _____

(Continued on next page)

Prenatal Development   *Chapter 4 continued*

17. What does a genetic counselor do? _____

_____

18. Complete the following chart about prenatal tests.

Prenatal Test	Description	Risk
Alpha-fetoprotein (AFP)		No known risk
	Sound waves are used to make a video image of the unborn baby.	
Amniocentesis		
Chorionic villi sampling		

Section 4–3: Avoiding Dangers to the Baby

19. Compare fetal alcohol syndrome (FAS) and fetal alcohol effects. How are they similar? How are they different?

_____

_____

_____

20. Why is it critical to avoid taking medications in the first three months of pregnancy unless specifically prescribed?

_____

_____

_____

21. Describe the possible effects on a baby of each hazard listed below.

   A. Caffeine: _____

   _____

   B. Tobacco: _____

   _____

   C. Cocaine: _____

   _____

(Continued on next page)

Prenatal Development   *Chapter 4 continued*

22. What is SIDS? _____

_____

23. If an expectant mother needs X-rays because of an accident, why should she tell the doctors that she is pregnant?

_____

_____

24. Give three examples of hazardous substances pregnant women should avoid. _____

_____

25. Complete the following chart about infections during pregnancy.

Infection	Possible Effects on Baby	Prevention
Rubella		
Toxoplasmosis		
Chicken pox		
STDs	Serious illnesses, physical disabilities, death	
AIDS		

The Developing Baby

Stages of Prenatal Development

> **Directions:** Each letter in the lists below describes what happens at a particular time during a baby's prenatal development or a mother's pregnancy. For each description, write the month of pregnancy in which it typically occurs.

Developing Baby

A. Moves into head-down position. _____

B. Internal organs begin to form. _____

C. Fetus is about 3 inches long. _____

D. All organs are present but immature. _____

E. Breathing movements begin. _____

F. Fetus acquires antibodies from mother. _____

G. Bones begin to form. _____

Mother

H. Breasts begin to swell. _____

I. Lightening felt. _____

J. Strong fetal movements. _____

K. Appetite increases. _____

L. Missed menstrual period. _____

M. Possible backache, shortness of breath, fatigue. _____

N. Uterus is about the size of an orange. _____

> **Directions:** Use the answers above to complete the time lines on the next page. Arrange the descriptions of a baby's prenatal development and a mother's pregnancy in the correct sequence from conception to birth. Write the letter of the earliest event in the circle in the top box and note the event. Continue until the time lines for both the baby and mother are completed.

The Developing Baby   *Section 4–1 continued*

Development and Pregnancy Time Line

BABY	MOTHER

CONCEPTION

END OF MONTH 2

END OF MONTH 4

END OF MONTH 6

END OF MONTH 8

The Developing Child: **Homework Activities**   **39**

The Developing Baby

Heredity in the Works

Directions: Fill in the grid for each situation to determine the chances the couple has of passing on the genetic trait described. Then complete the statements that follow, summarizing your findings.

1. The woman is blue-eyed and carries two genes for blue eyes. The man is brown-eyed and carries one gene for brown eyes and one gene for blue eyes. Complete the grid to determine the chances that any child they have will be born with blue or brown eyes.

Mother

Father b   b

   B

   b

B = the gene for brown eyes (dominant)
b = the gene for blue eyes (recessive)

   A. There is a _____ in _____ chance that any child will have brown eyes and carry genes for both brown and blue eyes.

   B. There is a _____ in _____ chance that any child will have blue eyes and carry genes for blue eyes only.

2. The mother and father both carry a gene for sickle cell anemia, a disease caused by having two recessive genes. They do not have the disease but may pass it on to their children. Complete the grid to determine the chances that any child will be born with the disease.

Mother

Father r   n

   r

   n

r = a gene that carries the recessive trait for sickle cell anemia
n = a normal gene without the sickle cell trait

   A. There is a _____ in _____ chance that any child will have sickle cell anemia and carry two genes for it.

   B. There is a _____ in _____ chance that any child will carry a gene for sickle cell anemia but not have the disease.

   C. There is a _____ in _____ chance that any child will not have sickle cell anemia or carry a gene for it.

Problems in Prenatal Development

Detecting Birth Defects

Directions: Match the symptoms in the left-hand column to the birth defects listed in the right-hand column. Write the letter of the correct answer in the blank to the left of each symptom.

Symptom	Birth Defect
_____ 1. Gap in roof of the mouth	**A.** Hydrocephalus
_____ 2. Progressive weakness and shrinking of the muscles	**B.** Muscular dystrophy
_____ 3. Overly rapid growth of the head	**C.** Cerebral palsy
_____ 4. Very salty sweat and a cough that does not go away	**D.** PKU
_____ 5. Child slow to develop motor skills	**E.** Sickle cell anemia
_____ 6. Incompletely formed spinal cord	**F.** Down syndrome
_____ 7. Tiredness, lack of appetite, and pain	**G.** Cleft palate
	H. Cystic fibrosis
	I. Spina bifida

Directions: In the diagram below, write the name of the prenatal test in the box with its description.
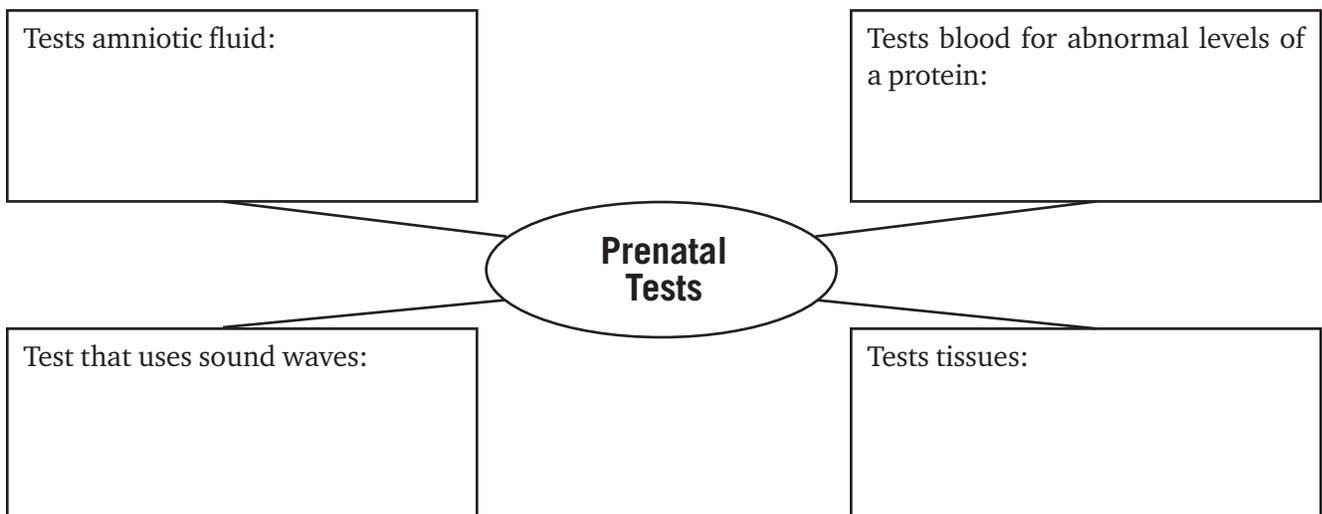
Tests amniotic fluid:

Tests blood for abnormal levels of a protein:

Prenatal Tests

Test that uses sound waves:

Tests tissues:

Avoiding Dangers to the Baby

Facing Issues of Prenatal Care

> **Directions:** Read the following descriptions of behavior by women who are pregnant. Decide whether the behavior is appropriate or inappropriate and place a check (✓) in the appropriate space. Then, using the spaces that follow, explain why you answered as you did.

1. Miranda suspected that she might be pregnant so she took a home pregnancy test, which confirmed that she was. A friend has told her to see a doctor, but Miranda says she can not afford it now.

    _____ **Appropriate**   _____ **Inappropriate**

    Explain your answer: _____

    _____

    _____

    _____

2. Alberto and Diane, parents of a healthy eight-year old, want another child. There is a history of birth defects in Diane's family. They are going to visit with a genetic counselor.

    _____ **Appropriate**   _____ **Inappropriate**

    Explain your answer: _____

    _____

    _____

    _____

3. Emily is a healthy twenty-three-year-old. She has just found out she's pregnant. Her best friend's baby was born with spina bifida. Emily is afraid that her child may be born with some birth defect and requests having special prenatal tests.

    _____ **Appropriate**   _____ **Inappropriate**

    Explain your answer: _____

    _____

    _____

    _____

4. Chantal and her husband Charles want to have a baby. Since they made this decision, they both have quit smoking.

    _____ **Appropriate**   _____ **Inappropriate**

    Explain your answer: _____

    _____

    _____

    _____

The Developing Child: **Homework Activities**