

INTRODUCTION TO HEREDITY--KEY

Using the booklets provided, answer the following questions on your own paper.

1. Define birth defects.
AN ABNORMALITY OF STRUCTURE, FUNCTION, OR BODY METABOLISM THAT OFTEN RESULTS IN A PHYSICAL OR MENTAL HANDICAP, A SHORTENED LIFE, OR DEATH.

2. List and discuss the five ways birth defects may be classified.
 - A. **MALFORMATION PRESENT AT BIRTH, PART OF THE BODY MAY BE MISSING, MALFORMED, OR DUPLICATED.**
 - B. **INBORN ERRORS OF METABOLISM--INABILITY OF BODY CELLS TO PRODUCE VARIOUS ENZYMES OR OTHER PROTEINS NEEDED TO CONVERT CERTAIN CHEMICALS INTO OTHERS OR CARRY SUBSTANCES FROM ONE PLACE TO ANOTHER.**
 - C. **BLOOD DISORDERS--REDUCED OR MISSING BLOOD COMPONENT INABILITY TO DO ITS FULL SHARE OF WORK.**
 - D. **CHROMOSOMAL ABNORMALITIES--CONTAIN CHROMOSOMES IN ABNORMAL NUMBERS, STRUCTURE, OR ARRANGEMENT--RETARDATION AND PHYSICAL MALFORMATIONS.**
 - E. **PRENATAL DAMAGE--MANY CAUSES AND TAKES MANY FORMS, WHICH MAY INCLUDE INFECTIONS, CHEMICAL AGENTS, NATURAL DISORDER OF ABNORMALITIES UNIQUE TO PREGNANCY.**

3. Name the three general causes of birth defects and the percentage or incidence for each.
 - A. **HEREDITY--20 percent**
 - B. **ENVIRONMENT--20 percent**
 - C. **COMBINATION OF HEREDITY AND ENVIRONMENT--60 percent.**

4. When is the most sensitive period during prenatal development for birth defects to the unborn baby? Explain why this is the case.
FIRST 6 WEEKS--BECAUSE BASIC FETAL FRAMEWORK IS BUILT DURING THIS TIME AND MOTHER RARELY KNOWS SHE IS PREGNANT.

5. Name and explain the three direct maternal factors.
 - A. **DIRECT METABOLIC DISORDERS--MOTHER MAY HAVE DISORDER THAT MAY OR MAY NOT PASS TO THE CHILD (DIABETES, PKU).**
 - B. **MATERNAL AGE--MORE LIKELIHOOD OF PROBLEMS IF YOUNGER THAN 19 AND OVER 35 YEARS OF AGE.**
 - C. **NUMBER AND SPACING OF PRIOR PREGNANCIES--HAVING CHILDREN CLOSE TOGETHER CAN AFFECT THE MOTHER'S HEALTH AND IN TURN AFFECT THE FETUS.**

6. Name and explain the five environmental causes acting on the mother during pregnancy.
 - A. **VIRAL DISEASE AND INFECTIONS CAN DAMAGE THE FETUS, DEPENDING ON WHAT IS BEING DEVELOPED AT THE TIME OF OCCURRENCE.**
 - B. **STDs CAN BE TRANSMITTED BEFORE OR DURING BIRTH.**
 - C. **DRUG USE--ANY DRUG CAN POTENTIALLY HARM. NEVER USE DRUGS WITHOUT A DOCTOR'S APPROVAL.**
 - D. **SMOKING: DEPENDS ON WHEN AND HOW MUCH THE MOTHER SMOKES.**
 - E. **DIET--BEST INDICATOR FOR POTENTIAL GROWTH IS MOTHER'S WEIGHT GAIN. A MOTHER NEEDS A BALANCED ADEQUATE DIET BEFORE AND DURING PREGNANCY.**

7. Name and discuss the two common examples of the effects the larger environment will have on the unborn.
 - A. **RADIATION--MAY CAUSE BIRTH DEFECTS--VARIES BECAUSE OF AMOUNT AND TIME INTRODUCED.**
 - B. **POLLUTANTS--WATER, AIR, PESTICIDES, ADDITIVES; MAY CAUSE PROBLEMS.**

8. Name and describe a birth defect that is caused by a combination of heredity and environment.

ANY OF THE FOLLOWING: DIABETES, HIGH BLOOD PRESSURE, CLEFT LIP/PALLET, CLUBFOOT, HYDROCEPHALUS, MUSCULAR DYSTROPHY, SPINA BIFIDA.

9. Name five things that can be done to help prevent birth defects.
 - A. **EARLY AND REGULAR PRENATAL CARE.**
 - B. **VACCINES.**
 - C. **RH VACCINE DURING AND AFTER PREGNANCY.**
 - D. **CONSULT WITH GENETIC SERVICES.**
 - E. **BECOME EDUCATED**