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 PREGNATAL CARE.
   B. VACCINES.
   C. RH VACCINE DURING AND AFTER PREGNANCY.
   D. CONSULT WITH GENETIC SERVICES.
   E. BECOME EDUCATED