Nature and Nurture Review Questions

The following questions must be completed *before* the Nature and Nurture quiz. If you are taking your answers from the Prenatal: Nature and Nurture reading you must paraphrase. This means do not simply copy the definition exactly as it appears on your reading. Instead, place the definition in to your own words. In so doing, you will increase your understanding of the concept, idea or phenomenon you are studying.

1). What is *conception*?

2). What are genes?

3). What is heredity?

4). Why is genetic variability absolutely necessary for a child to develop properly?

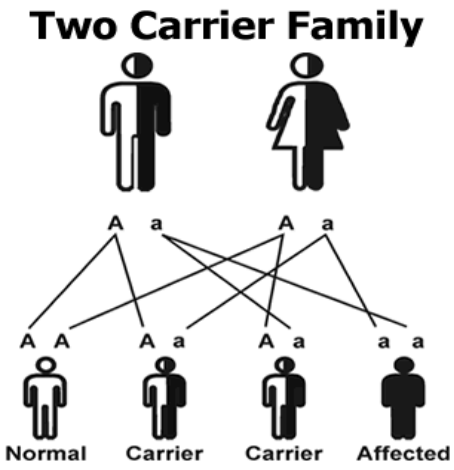
5). Compared to people drawn from the general population why are close relatives more likely to pass on genetic disorders to offspring?

6). What do genes do?

7). In what sense are dominant and recessive "expressed" differently?

8). What does a person's genotype have to look like for a recessive trait to actually be expressed?

9). Geneticists use something called Punnet Squares to illustrate how heredity and genes work. For instance, consider the diagram to the right. Both parents have the same genotype, e.g. Aa. When these parents have children their genes combine in to one of four possible combinations. Statistically speaking, parents with an Aa genotype have a 25% chance of having offspring with a recessive trait. These recessive traits can be harmless like blonde hair or blue eyes; however, these recessive traits can lead to genetic disorders like hemophilia.



Complete the Punnet Squares below. For each square answer the following questions:

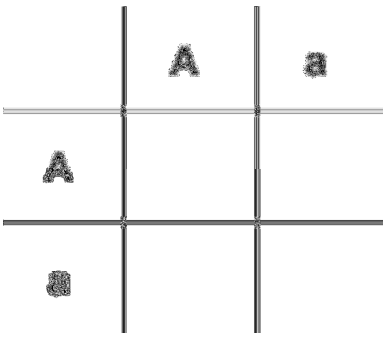
What is the percentage chance that the offspring will be affected by an expressed recessive trait? What is the percentage chance the person will carry the trait but not be directly affected (expressed) by it? And what is the chance the person will be healthy and not be a carrier of the recessive allele at all?

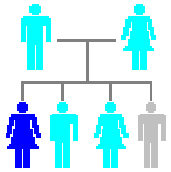
Note: dominant traits are *always* represented as capital letters and recessive traits by lower case letters.

a).

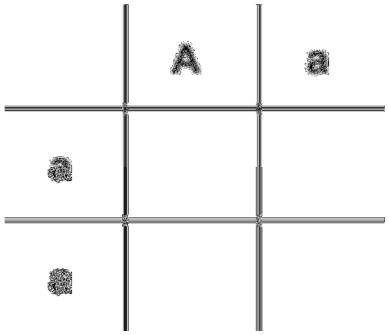
	Y	G
Y		
G		

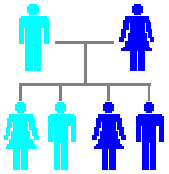
b).





c).





10). What is a chromosome?

11). What are the two types of chromosomes?

12). Which one—the male or female—have a XX sex chromosome?

13). Which one—the male or female—have an XY sex chromosome?

14). How many chromosomes does each gamete contain?

13). How many chromosomes does each human cell (with the exception of gametes) contain?

14). Explain how it is that the father determines the sex of the child.

15). What are two risks associated with the Amnicentesis test for genetic disorders?

16). What is genetic engineering?

17). What is genetic screening?

18). What was the Human Genome Project?

19). What were the four goals of the Human Genome Project?

20). What is the most fundamental different between fraternal and identical twins?

21). In what respect are identical twins not necessarily completely identical?

22). Define the Following Tests and Diseases

Amnicentesis:

Ultrasound Sonography:

Chronic Villus Test:

Maternal Blood Test:

Club Foot:

Cleft Palate:

Cystic Fibrosis:

Spina Bifida:

PKU (Phenylketonuria):

Muscular Dystrophy: