



How Much Do You Know About

HEREDITY?

Take this test and see if you can separate fact from fancy.

Three Americans won the 1958 Nobel prize in medicine for their studies on heredity, renewing interest in this age-old puzzle.

All of us talk about heredity, yet few of us know how pug noses and blue eyes get passed on through the generations. Dr. Margaret Lieb of Brandeis University offers this test. By marking the following statements TRUE or FALSE, you can discover for yourself what wisdom you've inherited about heredity.

1. Every person inherits two complete sets of chromosomes, one from each parent.

True. Every cell of the body contains two sets of chromosomes, tiny threadlike objects made of a material called nucleoprotein. These threads, like tape recordings, carry hundreds of messages (genes). Each gene in some mysterious way tells the cell how to produce various chemicals and how to combine them, so that Johnny will have blond hair, dimples, blue eyes.

2. Your child can never be your "spitting image."

True. Only identical twins can be true look-alikes. At conception your child receives from you and your mate a random mixture of chromosomes, which have come from your parents, their parents, and all the way back. The result is a vast number of genetic messages which make the chance for exact likeness almost impossible.

3. Environment cannot affect a person's inherited traits.

False. Research has shown that nutrition, climate, and many other factors can influence the way body cells respond to gene messages. Children with genes for tallness, for instance,

may remain small if their body cells do not get the right substances to build strong bones. Japanese children raised in Hawaii become heavier and taller than those reared in Japan, largely because the diet is better.

4. Intelligence is inherited and has nothing to do with environment.

False. While inherited genes probably do dictate the number of brain cells our skulls cover, and how they will grow, heredity has little to do with the stimuli those brain cells receive. Intelligence depends to a great degree on school, experience, family situations, and cultural surroundings. A child reared in complete isolation, without any stimuli, will have little intelligence, regardless of his inherited brain structure.

5. Two brown-eyed parents may have a blue-eyed baby.

True. The child's parents, even his grandparents, can all be brown-eyed as long as each parent carries one gene for blue eyes. Since every person has two sets of genes, he may carry one gene for blue eyes and one for brown eyes. When these genes compete to give a message to the body cell, the brown-eyed gene is dominant and wins out. The blue-eyed genes are hidden, but they remain and can be passed on to an offspring.

6. When close relatives marry, there is a greater-than-average possibility that their children will have hereditary defects.

True. Most hereditary defects are caused by genes which are hidden when normal dominant genes are also present. Every person has many different hidden genes, and close relatives will tend to inherit the same

genes. If closer relatives marry, there is a fair possibility that a child will receive the same hidden gene from each parent. The child would then have no normal gene for some trait.

7. Certain traits like color blindness and baldness are far more common in males.

True. Color blindness and baldness are caused by genes that are hidden when normal dominant genes affecting the same traits are also present in the cells. These particular genes are part of a chromosome called X or sex chromosome. A male has only one X chromosome; a female, two. So, if a gene for baldness or color blindness is inherited by a male it will always "speak up." In the female, it will be hidden if a normal gene is present on the other X chromosome.

8. You and your husband are handsome and intelligent. Your children must also be bright beauties.

False. At conception, so many genes are shuffled about that no one can accurately predict what pattern the child will follow. Take a look at all your living relatives and see if the genes in your two families combine regularly to produce attractive people. By looking at living examples, you'll get a better idea of what variations you can expect.

9. Your child can inherit your bad temper or "mean streak."

False. There is no real proof of "mean streaks" running through whole families. The environment in which your child grows is far more apt to shape his personality. If he grows in a home where angry words and violent outbreaks are common, he may simply adopt this as his pattern of behavior.