

Questions 1-5

The following reading passage has five sections A-E.

Choose the correct heading for each section from the list of headings.

Write the correct number i-viii in boxes 1-5 on your answer sheet.

NB. There are more headings than sections, so you will not use them all.

1 Section A

2 Section B

3 Section C

4 Section D

5 Section E

List of Headings

i Colorblindness' in different countries

ii Diagnosing colorblindness

iii What is colorblindness?

iv Curing colorblindness

v Unsolved myths

vi Animals and colorblindness

vii Developing the ability to see color

viii Colorblindness and the sexes

Colorblindness

A Myths related to the causes and symptoms of "colorblindness" abound throughout the world. The term itself is misleading, since it is extremely rare for anyone to have a complete lack of color perception. By looking into the myths related to color blindness, one can learn many facts about the structure and genetics of the human eye. It is a myth that colorblind people see the world as if it were a black and white movie. There are very few cases of complete colorblindness. Those who have a complete lack of color perception are referred to as monochromatics, and usually have a serious problem with their overall vision as well as an inability to see colors. The fact is that in most cases of colorblindness, there are only certain shades that a person cannot distinguish between. These people are said to be dichromatic. They may not be able to tell the difference between red and green, or orange and yellow. A person with normal color vision has what is called trichromatic vision. The difference between the three levels of color perception have to do with the cones in the human eye. A normal human eye has three cones located inside the retina: the red cone, the green cone, and the yellow cone. Each cone contains a specific pigment whose function is to absorb the light of these colors and the combinations of them. People with trichromatic vision have all three cones in working order. When one of the three cones does not function properly, dichromatic vision occurs.

B Some people believe that only men can be colorblind. This is also a myth, though it is not completely untrue. In an average population, 8% of males exhibit some form of colorblindness, while only 0.5% of women do. While there may be some truth to the idea that more men have trouble matching their clothing than women, the reason that color vision deficiency is predominant in males has nothing to do with fashion. The fact is that the gene for color blindness is located on the X chromosome, which men only have one of. Females have two X chromosomes, and if one carries the defective gene, the other one naturally compensates. Therefore, the only way for a female to inherit colorblindness is for both of her X chromosomes to carry the defective gene. This is why the incidence of color deficiency is sometimes more prevalent in extremely small societies that have a limited gene pool.

C It is true that all babies are born colorblind. A baby's cones do not begin to differentiate between many different colors until he is approximately four months old. This is why many of the modern toys for very young babies consist of black and white patterns or primary colors, rather than traditional soft pastels. However, some current research points to the importance of developing an infant's color visual system. In 2004, Japanese researcher Yoichi Sugita of the Neuroscience Research Institute performed an experiment that would suggest that color vision deficiency isn't entirely genetic. In his experiment, he subjected a group of baby monkeys to monochromatic lighting for one year. He later compared their vision to normal monkey who had experienced the colorful world outdoors. It was found that the test monkeys were unable to perform the color-matching tasks that the normal monkeys could. Nevertheless, most cases of colorblindness are attributed to genetic factors that are present at birth.

D Part of the reason there are so many inconsistencies related to colorblindness, or "color vision deficiency" as it is called in the medical world, is that it is difficult to know exactly which colors each human can see. Children are taught from a very young age that an apple is red. Naming colors allows children to associate a certain shade with a certain name, regardless of a color vision deficiency. Someone who never takes a color test can go through life thinking that what they see as red is called green. Children are generally tested for colorblindness at about four years of age. The Ishihara Test is the most common, though it is highly criticized' because it requires that children have the ability to recognize numerals. In the Ishihara Test, a number made up of colored dots is hidden inside a series of dots of a different shade. Those with normal vision can distinguish the number from the background, while those with color vision deficiency will only see the dots.

E While many of the myths related to colorblindness have been busted by modern science, there are still a few remaining beliefs that require more research in order to be labeled as folklore. For example, there is a long-standing belief that colorblindness can aid military soldiers because it gives them the ability to see through camouflage. Another belief is that everyone becomes colorblind in an emergency situation. The basis of this idea is that a catastrophic event can overwhelm the brain, causing it to utilize only those receptors needed to perform vital tasks. In general, identifying color is not considered an essential task in a life or death situation.

Questions 6-8

Choose the correct letter, A, B, C, or D. Write your answers in boxes 6-8 on your Answer Sheet.

6 People who see color normally are called

A monochromatic.

B dichromatic.

C tichromatic.

D colorblind.

7 Children usually begin to see a variety of colors by the age of

A one month.

B four months.

C one year.

D four years.

8 Children who take the Ishihara Test must be able to

A distinguish letters.

B write their names.

C read numbers.

D name colors.

Questions 9-12

Complete the summary using words from the box below.

Write your answers in boxes 9-12 on your Answer Sheet.

There are more answers than spaces, so you will not use them all.

It is a common 9 that only men suffer from colorblindness. On average 10 than ten percent of men have this problem. Women have two 11 For this reason, it is 12 for a woman to suffer from colorblindness.

myth

a little less

X chromosomes

defective genes

fact

slightly more

exactly

less likely

more probable

ANSWER
<ol style="list-style-type: none">1. iii2. viii3. vii4. ii5. v6. C7. B8. C9. myth10. a little less11. X chromosomes12. less likely