

Name \_\_\_\_\_

Date \_\_\_\_\_

## Inherited Genes

A trait is a distinct variant of a phenotypic character of an organism that may be inherited, environmentally determined or somewhere in between. For example, eye color is a character or abstraction of an attribute, while blue, brown and hazel, are traits.

Although we are all unique, there are often obvious similarities within families.

Maybe you have the same nose as your sister or brown hair like your father?

Family similarities occur because we

inherit traits from our parents (in the form of the genes that contribute to the traits). This passing of genes from one generation to the next is called **Heredity**.

Organisms pass on genes by duplicating their genetic info and then split up to form an identical organism. More complex organisms, humans as an example, produce specialized cells named gametes that carry half of our genetic information, and then combine these to form new organisms. This process is called meiosis.

Traits are passed from one generation to another through the genes of both parents. In the body cells divide and multiply by a process called **mitosis**. A mother cell produces two identical daughter cells. This occurs because before the cell divides, the DNA replicates itself so there are 2 sets of DNA, one for each new cell. In reproduction, the cells divide by a process called **meiosis**. When they combine, the result is one cell called a zygote with 23 pairs of chromosomes, half from the mother and half from the father.



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## Inherited Genes Multiple Choice Questions

1. \_\_\_\_\_ is a distinct variant of a phenotypic character of an organism.
  - a) Trait
  - b) Heredity
  - c) Character
  - d) None of these
  
2. Which of the following is NOT a trait?
  - a) Hair color
  - b) Eye color
  - c) Nose shape
  - d) Running speed
  
3. Traits are passed on to children from genes of
  - a) Father only
  - b) Mother only
  - c) Both parents
  - d) None of the above
  
4. In the body cells divide and multiply by a process called
  - a) Meiosis
  - b) Mitosis
  - c) Both of these
  
5. Passing of genes from one generation to the next is called \_\_\_\_\_.
  - a) Genes Transfer
  - b) Mitosis
  - c) Reproduction
  - d) Heredity

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### *Answers*

1. a
2. d
3. c
4. b
5. d

### *Explanation of Answers*

1. A trait is a distinct variant of a phenotypic character of an organism that may be inherited, environmentally determined or somewhere in between.
2. Running speed is something which is dependent on the runner, i.e. it is not inherited from parents. Therefore, it is not a trait.
3. From both parents.
4. In the body cells divide and multiply by a process called **mitosis** whereby a mother cell produces two identical daughter cells.
5. Passing of genes from one generation to the next is called **Heredity**. Simple organisms pass on genes by duplicating their genetic information and then splitting to form an identical organism.

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## Inherited Genes Writing Activity

1. Explain briefly, what is heredity?

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2. What are traits?

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3. Give three examples of traits that are passed on from your parents to you?

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4. Is it possible that your parents have blue eyes and you have black eyes?\_

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