

Heredity Scavenger Hunt

What traits do you share with your parents? The study of genetics has taught us so much about why we share certain traits with our relatives. It is also teaching us about medicines for the future. Learn more about heredity on the World Book Web and then find the answers to the following questions about the field of genetics!

Find It!

1. What part of cells carries the traits from one generation to the next?
2. Why are about half of all human babies girls and half boys?
3. What is the only way a recessive trait will be expressed?
4. What causes genetic mutations?
5. Generally, evolution by natural selection occurs quite slowly over several generations. What can cause it to happen faster?
6. Give three examples of inherited disorders in humans.
7. Why might some couples preparing to have children seek genetic counseling?
8. What is the difference between a genotype and a phenotype?
9. What are the four bases in DNA?
10. In what book did Charles Darwin propose the theory of natural selection?

Did You Know?

- ◆ By studying genetic material in Neandertal bones, scientists have determined that Neandertals (prehistoric human beings) most likely had red hair and pale skin.
- ◆ Protein collected from a 68-million-year-old *Tyrannosaurus rex* bone was found to have a close match to modern chickens. This finding supports the hypothesis that birds evolved from dinosaurs.
- ◆ Doctors can use your family health history and what they know about heredity to help you learn about likely diseases and conditions to which you might be susceptible.

Learn More!

- ◆ Cloning is the production of an organism with genetic material identical to another organism. Click here to see a photo of a cat and her clone.
<http://worldbookonline.com/student/media?id=pc315375&st=clone>
- ◆ DNA biochips are slides that allow scientists to study hundreds or thousands of genes at once. Click here to see what a DNA biochip looks like!
<http://worldbookonline.com/student/extmedia?id=ar749340&em=pc325891>
- ◆ Our knowledge about genes is changing medicine every day. Click here to read an article about the Promise of Genetics.
<http://worldbookonline.com/student/media?id=sr200003&st=genetics>

Answer Key

1. Genes
2. Males produce sperm with an X chromosome in numbers equal to sperm with Y chromosomes.
3. A recessive trait will only be expressed if an individual has two recessive alleles for that trait.
4. Genetic mutations are caused by mistakes that occur when copies of DNA are made during cell division, or by mutagens – certain chemicals or radiation.
5. Pollution or pesticides
6. Cystic fibrosis, Duchenne muscular dystrophy, Hemophilia, Huntington's disease, Phenylketonuria (PKU), Retinoblastoma, Sickle cell anemia, Tay-Sachs disease
7. A couple may seek genetic counseling when they know or suspect that genes play a significant role in a condition that affects them or someone in their family.
8. A genotype is the genetic makeup of a trait. A phenotype is the actual appearance of that trait.
9. Adenine, cytosine, guanine, and thymine
10. *The Origin of Species* (1859)