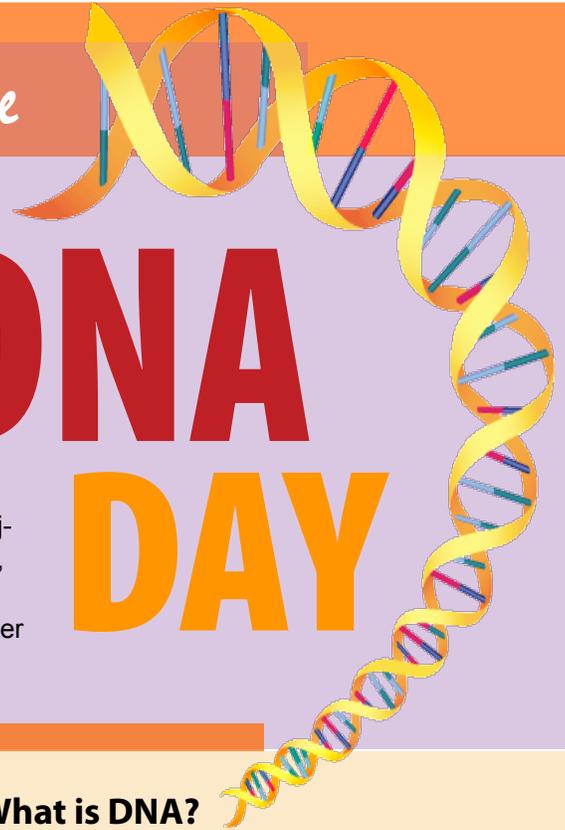


# Celebrating the code of life



# DNA DAY

## Why do we celebrate DNA Day?

On April 25, 1953, scientists James Watson and Francis Crick's paper describing the structure of DNA was published in the journal *Nature*. With the help of other scientists, Watson and Crick were the first to describe DNA as a double helix, or a twisted ladder shape.

The day also marks the completion of the Human Genome Project, the 13-year international effort that identified the sequence, or order, of more than 3 billion building blocks in human DNA. The Human Genome Project was finished in 2003, 50 years after Watson and Crick described DNA as a double helix.

## Everything about you begins with DNA

Trillions of cells are found in the human body. At the center of each cell is the nucleus. Each nucleus contains 23 sets of **chromosomes** with the hereditary traits of both parents.

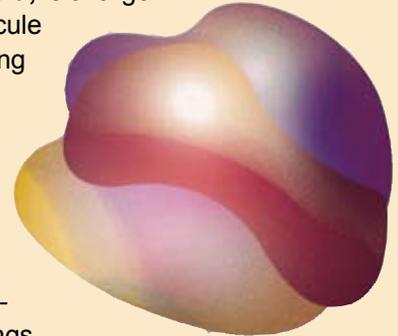
Each chromosome contains hundreds, sometimes thousands, of smaller packages of information called genes. Your genome (all of your chromosomes) has about 35,000 **genes**. Each gene has information that tells the cell to make a unique protein that will perform a special function. For instance, the genes can determine whether you will have blue eyes or brown eyes, curly hair or straight hair.

*Your genome is like a book that tells a story about you. The genes are the words that make up the story.*



## What is DNA?

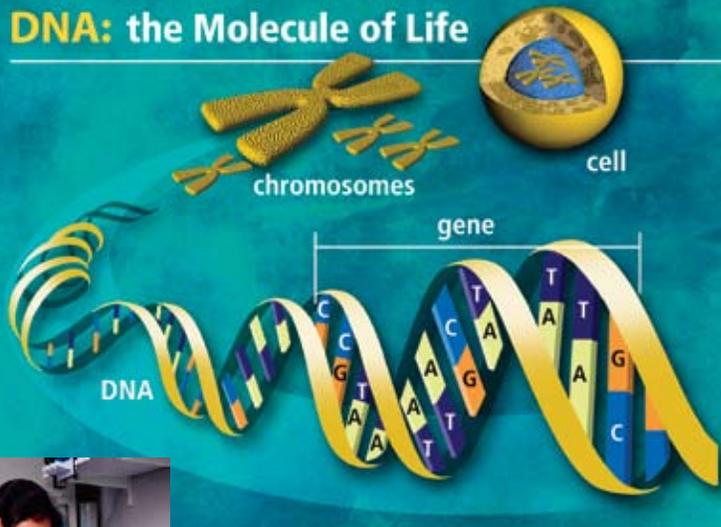
DNA or **deoxyribonucleic (de-ox-y-ri-b o-nu-cle-ic) acid**, is a large complex molecule found in all living cells. Think of it as an instruction manual or the blueprint for life. DNA is like a thumb-print and belongs only to you. Unless you have an identical twin, there is no one else on the planet who has the same DNA as you do.



**DNA protein**

*DNA is important because it contains all the directions for your cells to form, grow and reproduce. Cells can contain an enormous amount of DNA. If the DNA in just one of your cells was typed in books, the information would fill 200 volumes. All cells, except red blood cells, contain DNA.*

## DNA: the Molecule of Life



### Careers in genetics

A geneticist is a scientist who studies genetics, the science of heredity and variation of organisms. A geneticist can be a physician, but not always. A geneticist can also be employed as a teacher or researcher. Some geneticists perform experiments and analyze data to interpret the inheritance of traits. They may create methods to alter or produce new traits in an organism or try to determine the method or mode of inheritance of a gene.

You will need to take courses in biology, chemistry, physics, microbiology, cell biology, English, and mathematics. Geneticists can work in many different fields, doing a variety of jobs. There are many careers for geneticists in medicine, agriculture, wildlife, general sciences or many other fields like forensics, biotechnology or animal and plant breeding.

### Where is DNA found?

Each **cell** in your body contains all of your **genetic** instructions stored as DNA.

Each very long DNA molecule is tightly curled and packaged as a **chromosome**.

Each DNA molecule that forms a chromosome can be viewed as a set of shorter DNA sequences or units of function called **genes**.

Each gene is responsible for protein production. And, proteins determine what form a cell takes and what job it will do.

### Understanding genetic messages

Genetics is about storing and passing on messages. Genetic messages are stored in your DNA, which is inside almost every cell in your body. DNA tells cells what they're supposed to do, when, where and how — in order to keep your body working efficiently. Today, scientists are doing research to understand the genetic messages that make some people more prone to certain diseases than others. With this knowledge, they can develop new medicines to help people have healthier lives. In addition, DNA is used in many criminal court cases to determine the identify of suspects. DNA has come a long way.

# DNA



Unscramble the letters to form DNA words. *Can you supply a definition for each word?*

enge \_\_\_\_\_  
 lexhi \_\_\_\_\_  
 sueculn \_\_\_\_\_  
 sllec \_\_\_\_\_  
 ticeneg \_\_\_\_\_

**Answers:** Turn page over

gene  
 helix  
 nucleus  
 cells  
 genetic

*Have a good DNA!*