DNA

de·ox·y·ri·bo·nu·cle·ic acid

(dē-ŏk′sē-rī′bō-nōō-klē′ĭk)

DNA

DNA (deoxyribonucleic acid) carries the **master set of instructions** for cell functions

DNA molecule looks like a twisted ladder

Two strands wrap around each other in a spiral shape that scientist call a **DOUBLE HELIX**

DNA Ladder

Sides of the ladder are made of sugar and phosphate

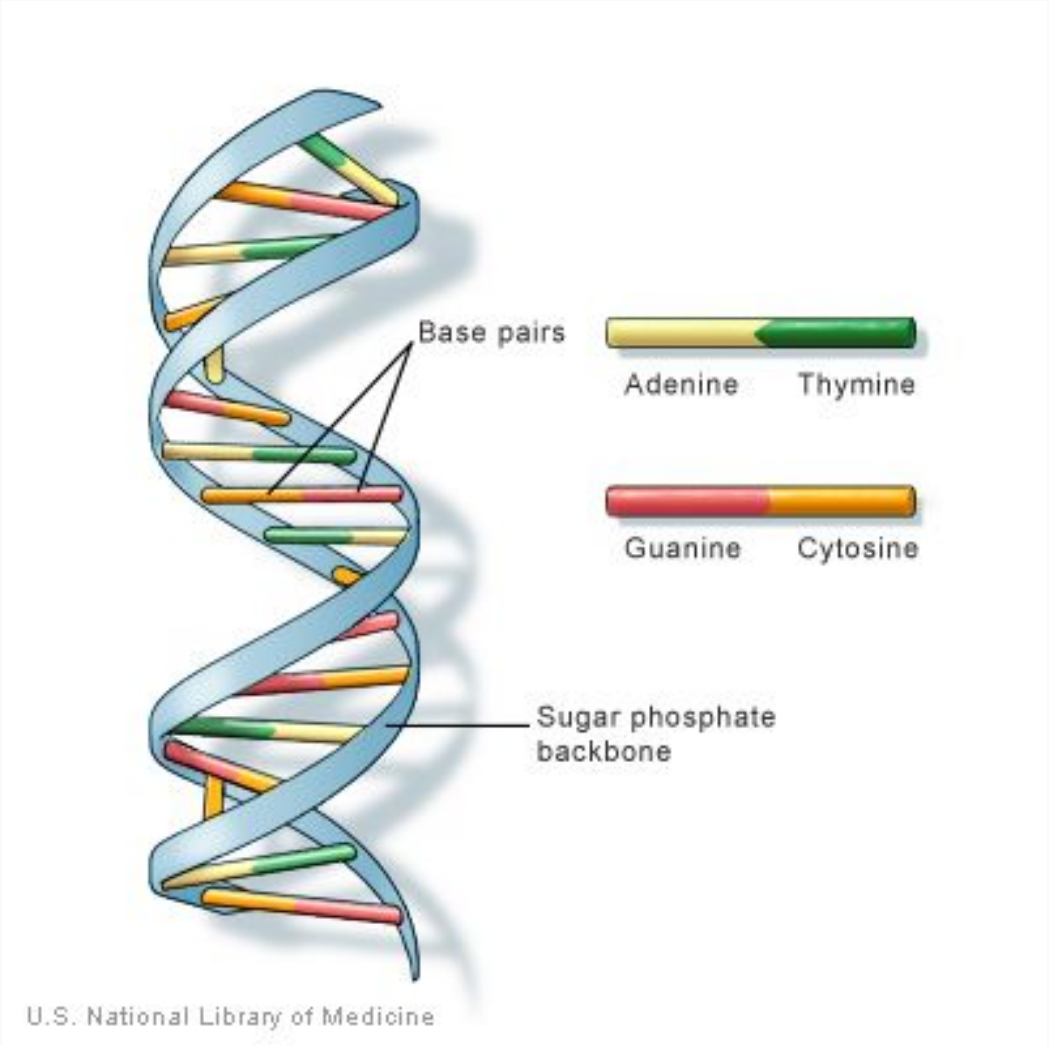
The steps of the ladder are made of four nitrogen bases

A Adenine

G Guanine

C Cytosine

T Thymine



DNA Message

Everything that occurs within the cell is the result of how the bases on the DNA molecule are arranged.

Bases in DNA are always joined in specific ways:

A always joins with T

G always joins with C

The order and number of these bases can vary greatly within DNA molecule.

In humans, a single DNA molecule can be several million base pairs in length.

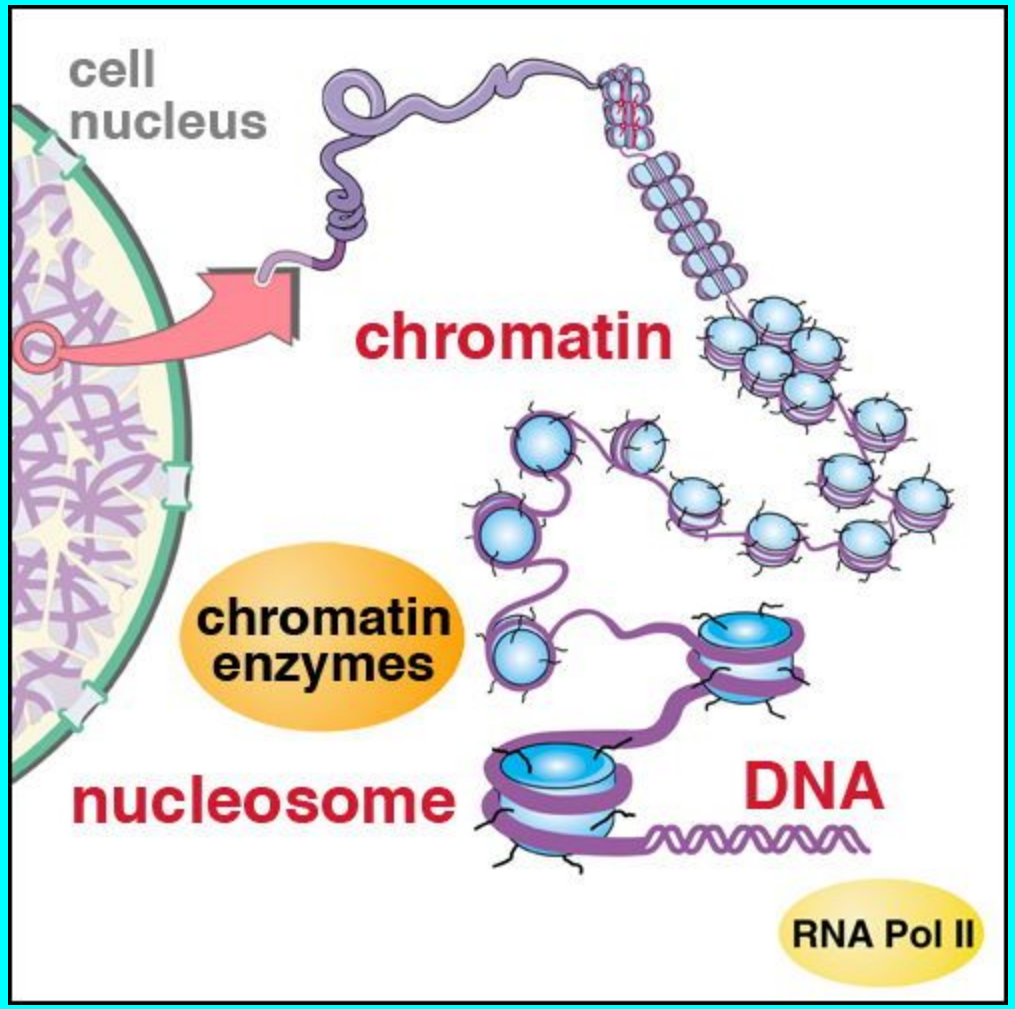
DNA is stored in Chromatin

DNA exists in the nucleus in the form of chromatin

Chromatin contains DNA and proteins

Each strand of chromatin contains one molecule of DNA

When cell is growing, DNA is uncoiled and helps in the manufacturing of proteins the cell requires


cell
nucleus
chromatin
chromatin
enzymes
nucleosome
DNA
RNA Pol II

Each strand of chromatin coils up into very compact, X-shape structures called a chromosome

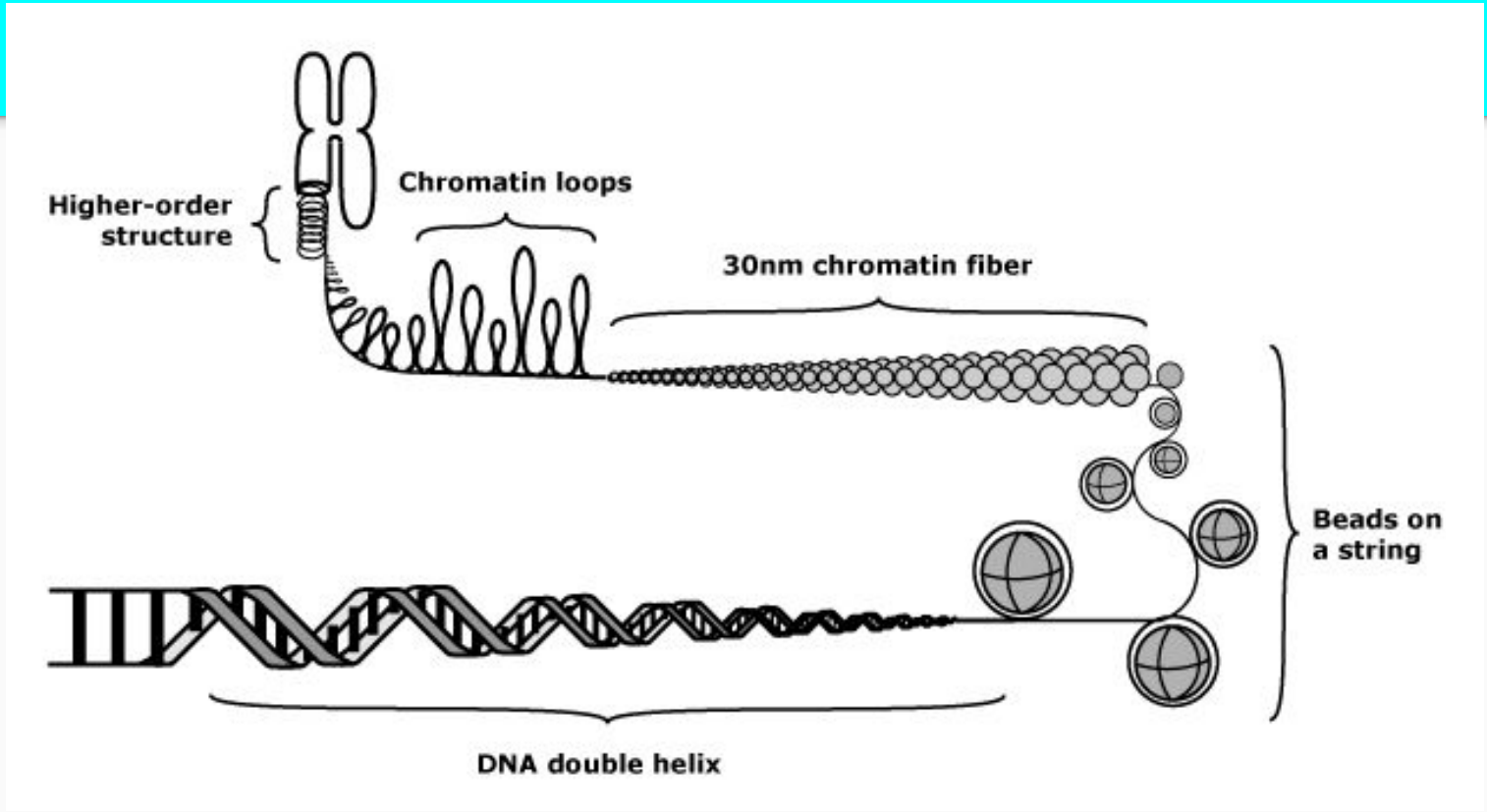
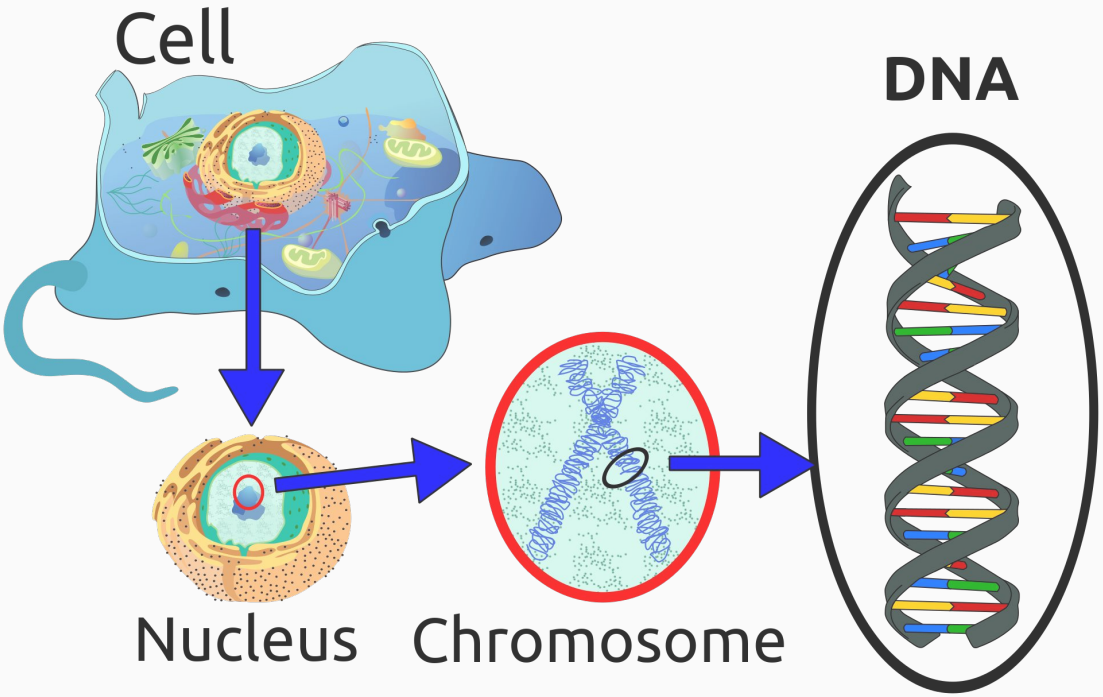


Diagram shows the relationship

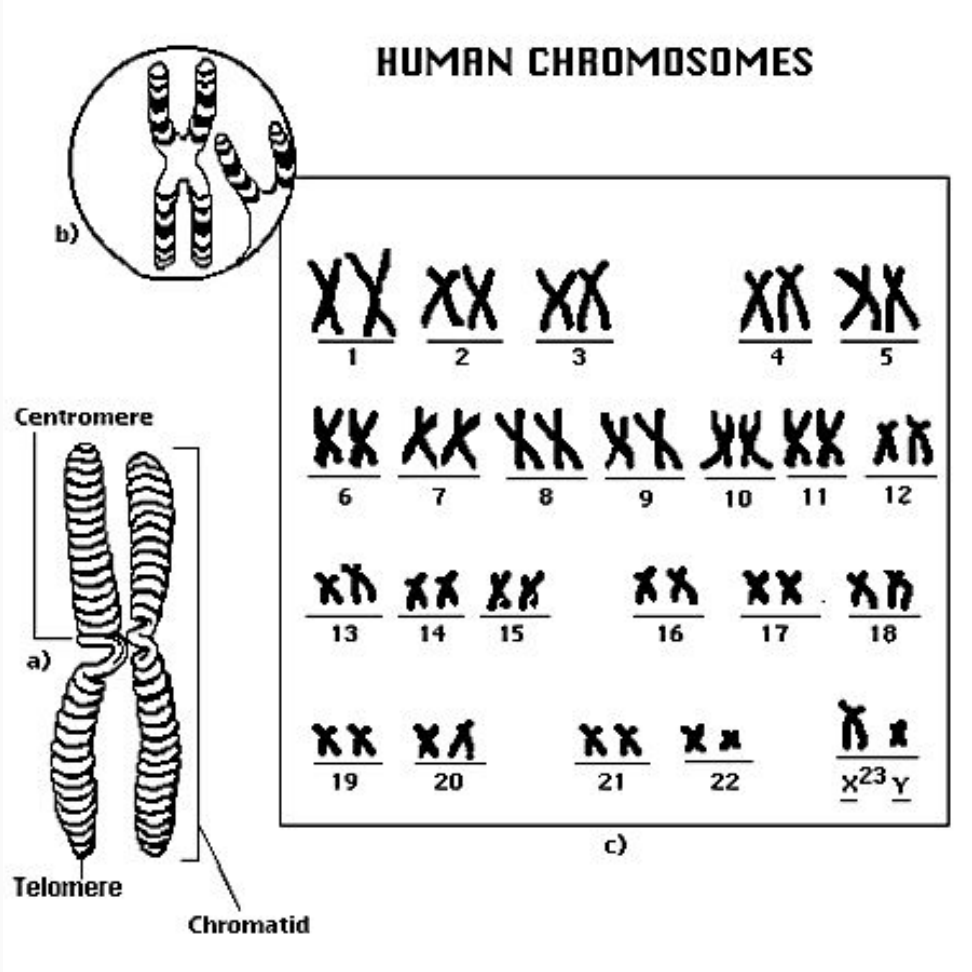


Every organism has a characteristic number of chromosomes

Humans have 46 chromosomes arranged in 23 pairs

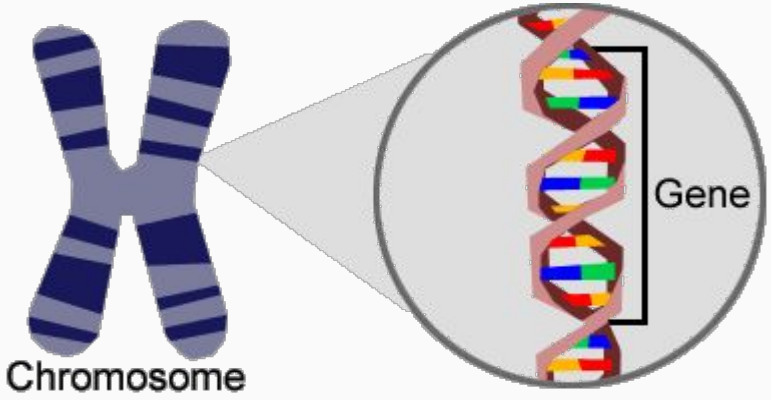
23rd pair is XX in females

23rd pair is XY in males



Genes are found on chromosomes

Genes are **small segments of DNA** located at specific places on chromosomes.



Genes store the information needed to produce 90 000 - 100 000 different **proteins** used in the cells of your body

Proteins determine what body cells will become and how they will function

Only specific genes are “read” in each cell to produce specific proteins.

Proteins needed to make your muscles work are made only in your muscle cells.

Proteins needed to help you read these notes are made only in cells in your eyes.

Specialized cells come together to form tissue, and tissues come together to form organs.