

DEFINITIONS

Gene – Genes are instructions that tell our bodies what to do or make, like what color eyes we have. Genes are the *books* in our library (the body).

DNA - DNA is the alphabet used to make words in our books. The DNA alphabet has only 4 *letters*, A, T, C, and G. The letters DNA stand for deoxyribonucleic acid. What a big word!

Cell - Cells are like little *rooms* in our library that hold the nucleus and chromosomes. Our body is made up of *thousands* of cells.

Nucleus - The nucleus is the inside of the cell where you find the Chromosomes.

Chromosome - Chromosomes are long pieces of DNA wrapped up really tight. The genes are found on the chromosomes inside the nucleus. Chromosomes are like the *shelves* that hold the books (genes). In our body library, there are 23 pairs of shelves (46 total) that hold all of our genes!

Double helix - The shape of DNA, similar to a twisted ladder.

Heredity – When genes are passed from parents to children. Heredity is sometimes called *inheritance*.

Can you find the definition words below?

D	G	C	E	H	U	N	C	S	Y	L
N	O	R	N	U	R	T	E	Z	N	B
A	W	U	J	N	U	C	L	E	U	S
M	V	S	B	F	K	H	L	L	C	N
D	O	U	Z	L	Y	X	J	M	B	Y
Q	V	H	E	R	E	D	I	T	Y	P
R	D	O	C	G	I	H	N	P	M	N
C	H	P	D	G	E	N	E	F	Q	Z
S	D	N	Q	E	W	Q	V	L	W	P
L	M	W	X	N	V	K	J	X	I	Y
C	H	R	O	M	O	S	O	M	E	X

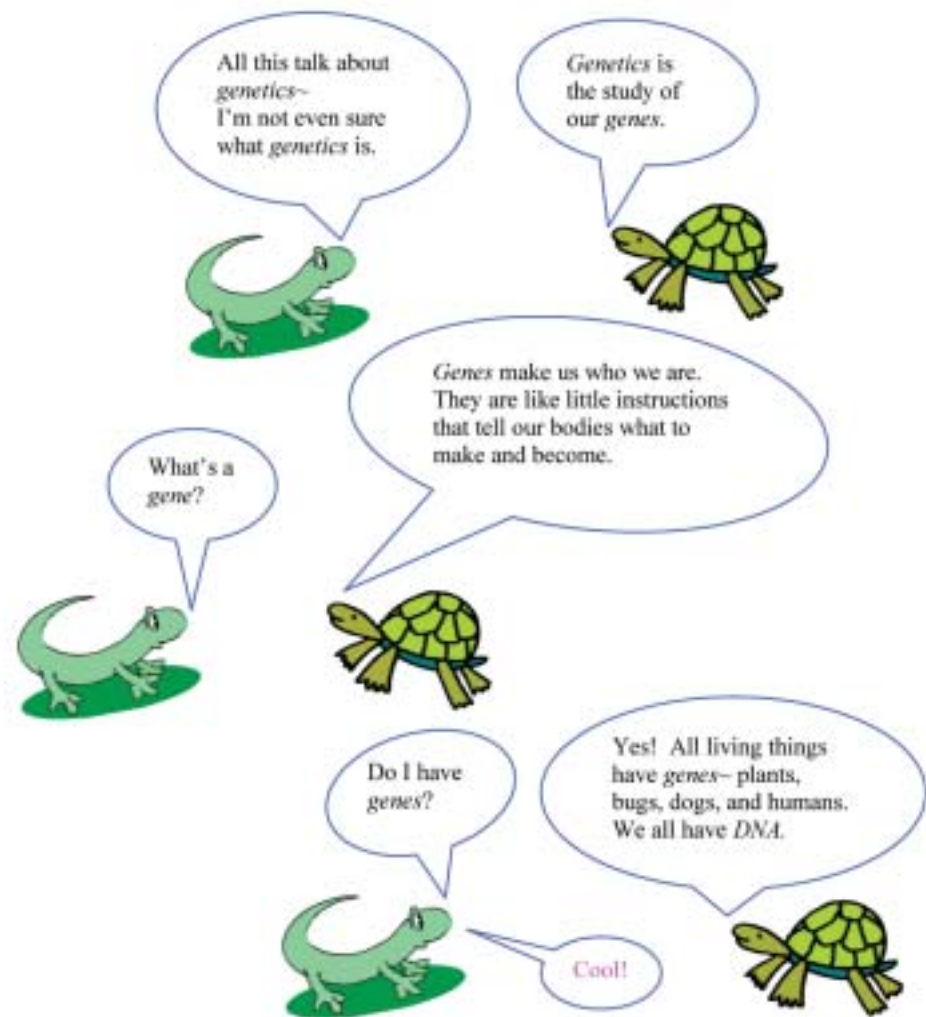
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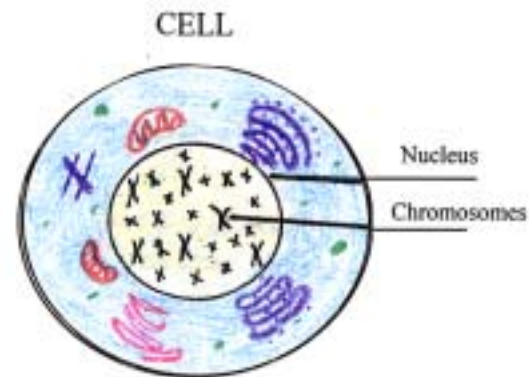
By Nicole Sameit



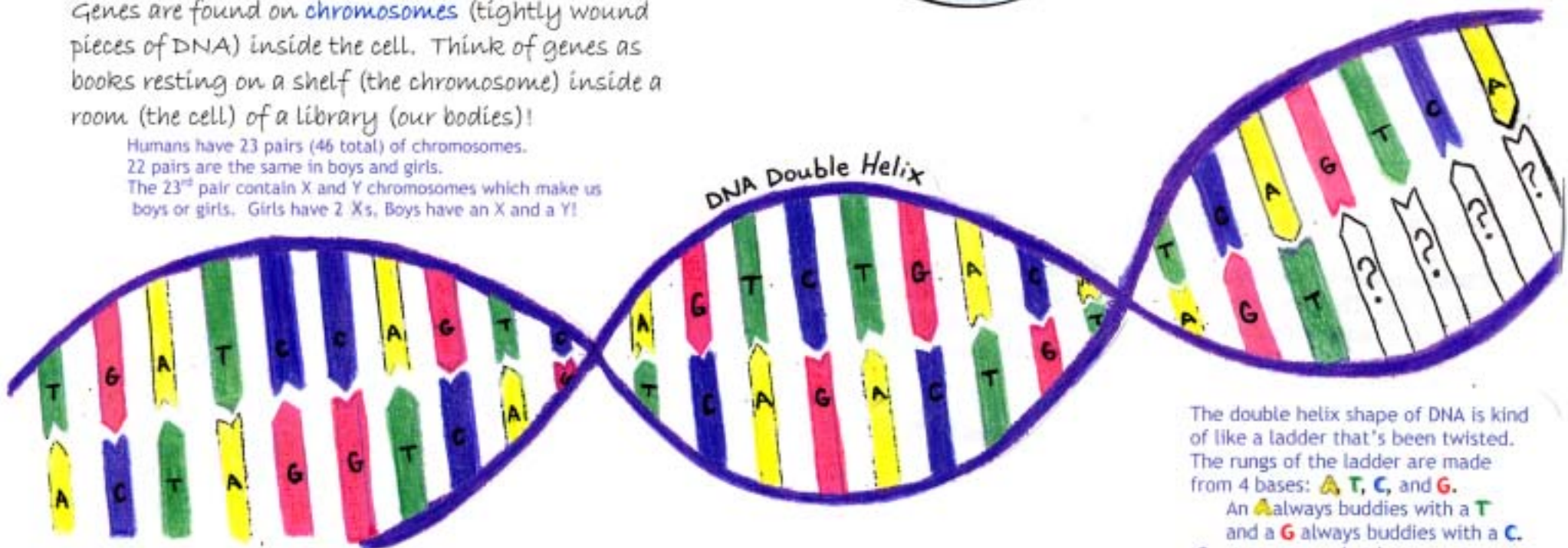
Lesson 1: Our Genes

1. Every living organism has DNA. DNA is usually found inside a cell's nucleus and contains all of the information to make us who we are. This information is packaged into little instruction books called genes. Genes are found on chromosomes (tightly wound pieces of DNA) inside the cell. Think of genes as books resting on a shelf (the chromosome) inside a room (the cell) of a library (our bodies)!

Humans have 23 pairs (46 total) of chromosomes. 22 pairs are the same in boys and girls. The 23rd pair contain X and Y chromosomes which make us boys or girls. Girls have 2 Xs. Boys have an X and a Y!



Our bodies are made up of thousands and thousands of cells. Inside the cell is the nucleus where you can find DNA wrapped into chromosomes. If you unwound the chromosome, you would see a double helix (below).



2. Genes make us who we are. They are instructions that tell our bodies what color eyes to make, how tall we'll grow, and how fast we'll run, to name a few. But genes don't work alone, they also take directions from our environment (what we eat, where we live, how much we exercise). Your genes might tell your body to be 6 feet tall, but if you don't eat well or if you don't take care of your body, you may not get to be that tall.

The double helix shape of DNA is kind of like a ladder that's been twisted. The rungs of the ladder are made from 4 bases: A, T, C, and G.

An A always buddies with a T and a G always buddies with a C.

Can you guess what letters come next in the double helix?

3. How do you get your genes? You get them from your mom and dad - this is called inheritance. Everyone gets half of their genes from their mom and half from their dad. Your parents pass their genes on to you before you are born. This is why we sometimes look or act like them. For example, you might have your mom's eyes, or your dad's nose, or maybe you smile like one of them.