

DNA, Fantastic!

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Welcome, I'm so happy you came by
For a lesson 'bout the essence of b-i-o-l-o-g-y
DNA's the topic; it's so fantastic,
We're talking 'bout Deoxyribonucleic acid

If you've ever wondered 'bout development in elephants
Or bumble bees, coffee trees, well DNA's the recipe
In its home in a chromosome in the nucleus
DNA drives the bus, genetically controlling us

In ferns and worms infectious germs, mommy's egg and daddy's sperm

DNA's the information linking up the generations
It's the code of life so listen up well,
'Cause DNA's the molecule in charge of every cell!

CHORUS

DNA! Fantastic
Deoxyribonucleic Acid
We're talking 'bout deoxyribonucleic acid
DNA! Fantastic

The shape is key -- probably well known to you
Double helix, twisted ladder, or a double corkscrew
Imagine a twisted length of tape with
Deoxyribose sugars on the edges with phosphates

Sugar phosphate sugar phosphate making up the sides of the
Ladder with nitrogenous bases on the inside
With the bases like the rungs and together with
Deoxyribose sugar and a phosphate make a nucleotide

Deoxyribonucleotides are the monomers
Link them up together for the DNA polymer
Point three four nanometers marks the space between
One nucleotide and the next one's place

And for the helix to make one turn takes
10 bases in a row as you can discern
Since space 'tween nucleotides is point three four,
One turn takes nanometers three point four

So stylish! So slick!
First described in '53 by Watson and Crick and
Don't forget Franklin she took that famous X-Ray pic
But she died so she never got her Nobel Prize.

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The nitrogenous bases comes in one of four varieties,
Known by the letters A, T, C and G
A is for Adenine, Thymine's got the "T"
C it stands for Cytosine and Guanine's got the "G"

A and G with two nitrogen rings are purines
C and T with one ring are pyrimidines
C only bonds with G, A only with T
Because like puzzle pieces they're complementary

They fit together, snuggled up like hand and glove,
Like enzymes and substrates, like people in love
A-T, C-G, matched up like lock and key
Forming hydrogen bonds, either two or three.

Hydrogen bonds, you know they aren't very strong,
But they're enough to hold DNA together all day long
The way the bases fit together couldn't be sweeter,
They give DNA a width of two nanometers

DNA's double stranded, looks pretty swell
The strands' orientation is anti parallel
With one standing up, the other on its head
It's how they fit together, Crick and Watson said!

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Sugars and phosphates make the backbone, the structure
But the sequence of the bases is where you find instructions
For development of bodies and the cytoplasmic symphony,
That constitutes life's miracle in goats and golden algae,

Your sequence of bases is unique, a special batch,
Unless you're an identical twin it's nowhere matched,
And you can bet, that if you're not Jango Fett
That you've got no clone, no one like you's been known!

Our bases comprise our individuality,
You might have "A" where I might have a "G"
Explaining why I'm bald and you got all that hair
These differences can show up anywhere,

The protein hemoglobin, now listen up well,
It carries oxygen in your red blood cells,
Hemoglobin's made of four protein pieces,
A trait widely shared among animal species.

Hundreds of bases spell one hemoglobin piece,
Hundreds of A's, G's, Ts and Cs
The gene starts CAC-GTG-CAC
Then TGA-GGA-CTC-CTC

The key is these bases are information,
For hemoglobin's function and conformation,
Hundreds of bases, in a predetermined order,
A single change brings on a major disorder,

Change T to A in one single spot
This little point mutation might not seem like a lot,
Thymine to Adenine might not seem that big to ya'
But baby that's the cause of sickle cell anemia

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