DNA: The Molecule of Life

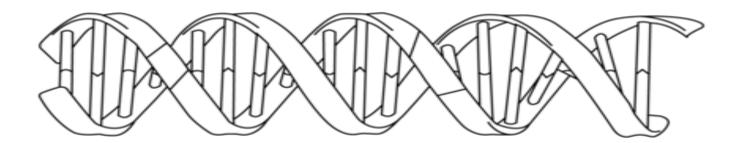
Answers may be found in these places: Genes and DNA - pages 25-35 Your Life Science Textbook - pages 110-115 **Internet Sites:** www.yourgenome.org/ click on beginner unless otherwise noted www.pbs.org/wqbh/nova/genome click on Journey into DNA https://www.nobelprize.org/educational/medicine/dna_double_helix/readmore.html

DNA Discoveries:

- 1. What discoveries did these scientists make about DNA? a. 1869 – Fredrich Miescher –
 - b. 1944 Oswald Avery –
 - c. 1950 Rosalind Franklin –
 - d. 1952 James Watson and Francis Crick -

DNA Structure:

Use the picture on page 29 (Genes & DNA) to complete this drawing of a DNA molecule.



2. What do the letters DNA stand for?

3. DNA is found on	in the	of the	
cell. DNA contains the	or coded instructions that are ne	_or coded instructions that are needed to build	
and run cells.			

4. What shape is the DN	A molecule?			
This looks like a			·	
5. DNA is made up of bu	uilding blocks calle	ed		The
sides of the DNA "ladder	" are made up of			
and a		The rungs	are made up of	f bases called:
6. "A" always pairs with _		. "C" always pairs with	۱	·
Making Copies and Mate	<u>hing Up:</u>			
7. DNA can make a		of itself. The two strands	S	
like a zipper opening. Th	ien, each side acts	s as a	or pa	ttern. New
bases and sides attach ar	ıd n	ew identical DNA strands a	are produced.	
Coded Magaza				
<u>Coded Message:</u>	DNA strond snall	out three letter "words" ee	llod	
		out three letter "words" cal		
	s make up a	, just like	words make a s	entence or
paragraph.	1			
-		ed to make a codon?		
		working or	r to	working
DNA at Work: Proteins:				
		ion of		
a		speed up chemical re	actions.	
b. proteins build _	,	, and		·
c. proteins are ma	de of building blo	ocks called		·
d. there are	types o	of amino acids.		
What jobs do proteins do	o for the cells?			

What is junk DNA?

<u>Copying the Message:</u>	
10. Proteins are made in the	
(ribonucleic acid) copies a gene from the DNA. RN.	A is a lot like DNA with these exceptions: RNA
has strand and does not have the letter	, it has instead.
The type of RNA that goes out in the cytoplasm with	n the pattern to make a protein is called
RNA.	
What does ribosomal RNA do?	
<u>Translating the Code:</u>	
11. The mRNA attaches itself to the	The coded instructions are
made of three letter	In the ribosome, another RNA called
RNA picks	up amino acids and matches them to specific
codons on the mRNA. The cell uses the genetic cod	e to translate the language of,
written codons, to the language of	, written in amino acids. This
makes new	
<u>Mutations - Changing the Message:</u>	
12. What is a mutation?	
13. Mutations may be	
or have	
14. Mutations can change the "message" of the cell b	by the
"letter" for another, by leaving a b	base or "letter", or by
a base.	
15. Two mutations that cause diseases are:	
-	causes a change in the shape
of red blood cells.	
b	causes blood to not clot properly.

 Human Genome Project:

 16. Humans have ______ chromosomes in their body cells.

 The number of chromosomes in a cell depends on the ______ of the animal it is from.

17. The human genome is all the	in one complete	of
 18. The goal of the human genome project is t	o find out the order of the	
that make up the coded messages of genes and	l to make a complete	of
the genome, showing where the genes are four	nd.	
19. How large is the genome of one human cel	1?	

20. How many pairs of "A"s and "T"s and "G"s and "C"s are there?

21. What device did the scientists use to help them?

22. What 3 amazing facts did this project discover?

23. How might we use this information in the future?