

**1. Answer the following short questions**

i. What is a gene?

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ii. What substances do genes tell our bodies to make?

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iii. What is heredity and its unit?

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iv. What are the three main components of DNA?

Pentose sugar	Phosphate group	Nitrogenous bases

v. What is difference between a nucleotide and nucleocide?

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vi. Name the four nitrogenous bases of DNA.

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vii. Why DNA is called “Blue Print” for life?

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viii. What are autosomes and sex chromosomes?

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**1. Long answer questions:**

i. State four characteristics of humans which are totally unaffected by the environment.

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ii. Describe the importance of DNA.

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iii. How DNA functions?

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iv. Describe the structure of DNA?

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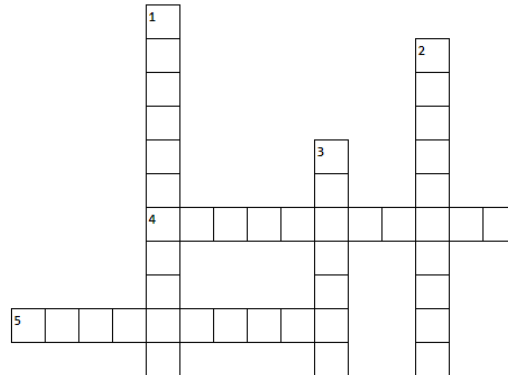
**2. Tick the right option.**

1. The basic physical and functional unit of heredity is;			
I. Gene	II. Chromosome	III. DNA	IV. Ribosome
2. The thread-like structures that are found in the nucleus of a cell.			
I. Genes	II. Mitochondria	III. Chromosomes	IV. Ribosomes
3. Females have two chromosomes;			
I. XY	II. YY	III. YX	IV. XX
4. Males have chromosomes;			
I. XY	II. YY	III. YZ	IV. XX
5. DNA is made up of major components;			
I. 2	II. 3	III. 4	IV. 5

**3. Fill ups**

- i. \_\_\_\_\_ means the transmission of characters from one generation to another.
- ii. A gene is a sequence of \_\_\_\_\_ that codes for a particular protein.
- iii. The 22 pairs of chromosomes are called \_\_\_\_\_ DNA is called the \_\_\_\_\_ for life.
- iv. DNA has four \_\_\_\_\_ bases.

### 4. Crosswords



Across	Down
4. Pentose sugar	1. Cytosine, thymine
5. Three components of DNA	2. Removal of phosphate group
	3. Guanine, adenine

### 5. Words Search

Find the following word in the words search.

Deoxyribose	Nitrogenous	Phosphate	Helix	Molecule
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S	C	A	T	S	A	L	T	D	R	N
K	M	O	L	E	C	U	L	E	R	I
B	T	E	A	T	H	I	N	O	X	T
G	O	O	U	R	C	E	L	X	B	R
P	P	N	K	H	E	A	E	R	U	O
O	L	I	U	E	H	E	L	I	X	G
V	A	R	I	A	T	I	O	B	E	E
E	S	P	I	N	D	L	E	O	R	N
C	M	B	T	U	I	M	B	S	A	O
D	B	N	P	O	U	Y	N	E	N	U
P	H	O	S	P	H	A	T	E	M	S

### 6. Jumbled Words

- |                    |                      |
|--------------------|----------------------|
| i. Ninegua _____   | ii. tideleonuc _____ |
| iii. nineade _____ | iv. cideleonuc _____ |
| v. sinecyto _____  | vi. osepent _____    |
| vii. minethy _____ | viii. adderl _____   |
| ix. raucil _____   | x. nousgenitro _____ |

### 7. Columns

A	B
DNA	Transmission of characters
Autosomes	Inherited
Genes	Biological instruction
Heredity	22 pairs of chromosomes
Genetic diseases	Segments of DNA

**8. Write “T” for the true and “F” for the false statement.**

- i. Adenine binds with Thymine with two hydrogen bonds.
- ii. Guanine binds with Cytosine with 4 hydrogen bonds.
- iii. The structure of DNA was discovered by Francis Crick and James Watson.
- iv. The structure of DNA is like a double helix, which is twisted ladder-like
- v. The diameter of DNA molecule is 4 nm.

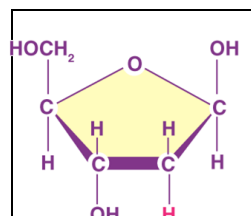
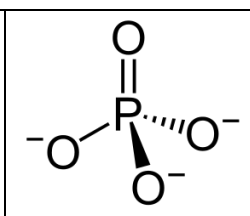
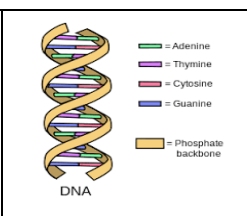
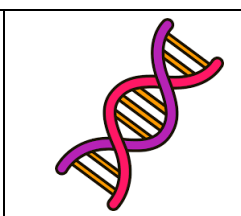
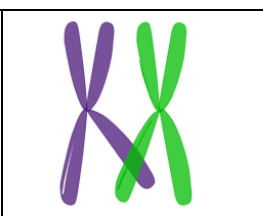

**9. Label the diagram.**

Structure of DNA



### 10. Drag and Drop

Look at the pictures and write their names in the relevant column.

				
Pentose sugar	Phosphate group	Nitrogenous bases	DNA	Chromosomes

Structure	Function

### 11. Comprehension

Answer the following questions after reading the paragraph and observe the picture carefully.

DNA, or deoxyribonucleic acid, is like a tiny instruction manual inside each cell, telling it how to function and grow. It's made up of two twisting strands, forming a structure called a double helix. Every living thing has its unique DNA code, inherited from parents. During cell division, DNA is copied so that each new cell gets its set of instructions. Understanding DNA helps scientists unlock the secrets of life and discover how traits pass from one generation to the next.





I. What is double helix?

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II. How a new cell gets its set of instructions?

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III. How the knowledge about DNA is helpful for scientists?

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