

Name: _____

Score: _____

16 Multiple choice questions

Term

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Which **best** summarizes the scientific process that led to our current understanding of DNA?

- ☐ The most important contributions were made within the same time period of the late 1800s.
- ☐ Scientists built on the previous work of other scientists to make new discoveries.
- ☐ Each scientist made an important, but unrelated, contribution.
- ☐ Most of the discoveries were made by chance and did not depend on prior knowledge.

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Which important property of DNA did Friedrich Miescher discover?

- ☐ It is made partly of sugar molecules.
- ☐ It has a double-helix structure.
- ☐ It is three-dimensional.
- ☐ It is found in the nucleus of a cell.

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Which scientist discovered DNA after experimenting with white blood cells?

- ☐ Watson
- ☐ Franklin
- ☐ Miescher
- ☐ Wilkins

Term

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Which label **best** represents the area marked Y?

chromosome
protein
gene
DNA

- ☐ DNA
- ☐ chromosome
- ☐ protein
- ☐ gene

Term

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What is the twisted ladder shape of the DNA called?

- ☐ nucleotides
- ☐ double helix
- ☐ 3-D model
- ☐ single strand

Term

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What causes the differences in physical characteristics like hair color among people?

- ☐ variations in DNA length
- ☐ variations in cell nucleus size
- ☐ different numbers of chromosomes
- ☐ different versions of genes

Term

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Before DNA was discovered, in which materials did scientists think the genetic material was stored?

- ☐ nucleic acids
- ☐ carbohydrates
- ☐ proteins
- ☐ lipids

Term

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What are the building blocks of proteins?

- ☐ tRNA molecules
- ☐ amino acids
- ☐ chromosomes
- ☐ ribosomes

Term

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Which **best** describes the storage of the genetic code?

- ☐ A DNA molecule is a segment of a chromosome, a chromosome makes up a gene, a gene is inside a cell, and a cell is contained within a nucleus.
- ☐ A DNA molecule is a segment of a gene, a gene makes up a chromosome, a chromosome is inside a cell, and a cell is contained within a nucleus.
- ☐ A gene is a segment of a chromosome, a condensed chromosome makes up a DNA molecule, a DNA molecule is inside a nucleus, and a nucleus is contained within a cell.
- ☐ A gene is a segment of DNA, a condensed DNA molecule makes up a chromosome, a chromosome is inside a nucleus, and a nucleus is contained within a cell.

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Which **best** compares DNA and RNA with regard to the process of protein production?

- ☐ RNA leaves the nucleus during the process and DNA remains in the nucleus.
- ☐ DNA transforms from a nucleic acid into a protein, and RNA remains a nucleic acid.
- ☐ RNA transforms from a nucleic acid into a protein, and DNA remains a nucleic acid.
- ☐ DNA leaves the nucleus during the process and RNA remains in the nucleus.

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Which substances compose the backbone of DNA?

- ☐ sugars and lipids
- ☐ lipids and proteins
- ☐ sugars and phosphates
- ☐ phosphates and amino acids

Term

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Which tool did Maurice Wilkins use when studying DNA?

- ☐ spectrometer
- ☐ digital camera
- ☐ X-ray machine
- ☐ electron microscope

Term

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Which two scientists worked together to develop a three-dimensional model of DNA?

- ☐ Crick and Miescher
- ☐ Franklin and Watson
- ☐ Watson and Crick
- ☐ Miescher and Wilkins

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Which **best** describes how DNA fits inside a cell nucleus?

- ☐ DNA tightly coils around proteins and condenses into chromosomes, which fit in the nucleus.
- ☐ DNA is doubled-stranded, so one stand is inside the nucleus and the other wraps around the nucleus.
- ☐ DNA folds into stacked layers called chromatin, which then squeeze into the nucleus.
- ☐ DNA is naturally much smaller than the cell nucleus so it fits inside the nucleus.

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Which characteristics describe the genetic code of humans?

- ☐ can only help understand human genetics and is composed of 23 chromosomes.
- ☐ contains over 3 billion base pairs, can help explain genetic diseases, and composed of about 19,000 genes

Term

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The arrow labeled X is pointing to _____.

- ☐ DNA
- ☐ ribosome
- ☐ a protein
- ☐ RNA