18.1 DNA and Heredity

Biology

Summarize main points from each video.

Video Title / topic _____

Video Title / topic _____

Video Title / topic _____

Topic Introduction

Summarize your understanding of each paragraph.

DNA stands for Deoxyribonucleic acid. DNA is a molecule. DNA carries genetic instructions for living organisms. DNA is one of the four major types of macromolecules. These four major macromolecules are essential for all known forms of life.

DNA & RNA are nucleic acids. The four major macromolecules are nucleic acid, proteins, lipids and polysaccharides. DNA molecules consist of two biopolymer strands. The strands are coiled around each other. The shape of DNA strands is called a double helix.

DNA stores biological information. The information is replicated when the two strands separate. The two strands of DNA run in opposite directions to each other. The word used to describe this is “antiparallel.”

DNA contains the genetic information that allows all modern living things to function, grow and reproduce. It is unclear how long in the 4-billion-year history of life DNA has performed this function. Possibly, the earliest forms of life used RNA as their genetic material.

Read/Summarize Text

1. **Read the passage.**
2. **Underline key expressions in each sentence.**
3. **Re-write each word (or expression) you underlined.**
4. **Summarize the passage.**

Title of Passage.

1

2

DNA, short for deoxyribonucleic acid, is the molecule that contains the genetic code of organisms. This includes animals, plants, protists, archaea and bacteria.

DNA is in each cell in the organism and tells cells what proteins to make. Mostly, these proteins are enzymes. DNA is inherited by children from their parents. This is why children share traits with their parents, such as skin, hair and eye color. The DNA in a person is a combination of the DNA from each of their parents.

https://simple.wikipedia.org/wiki/DNA

Re-write words you underlined

3

Using a complete sentence, summarize or rephrase the passage

4

Read Text for Comprehension

Read this article for deeper understanding. No summary is required, although you may want to circle, underline, or mark key ideas and words.

Primary structure consists of a linear sequence of nucleotides that are linked together by phosphodiester bonds. It is this linear sequence of nucleotides that make up the Primary structure of DNA or RNA. Nucleotides consist of 3 components:

Nitrogenous base

- Adenine
- Guanine
- Cytosine
- Thymine (present in DNA only)

5-carbon sugar *which is called deoxyribose (found in DNA) and ribose (found in RNA).*

One or more phosphate groups.

Purine. The nitrogen bases adenine and guanine are purine in structure and form.

Pyrimidines. Cytosine, thymine and uracil are pyrimidines.

For both the purine and pyrimidine bases, the phosphate group forms a bond with the deoxyribose sugar through an ester bond.

A Nucleic acid sequence is the order of nucleotides within a DNA (GACT) is determined by a series of letters.

Sequences can be complementary to another sequence in that the base on each position is complementary as well as in the reverse order.

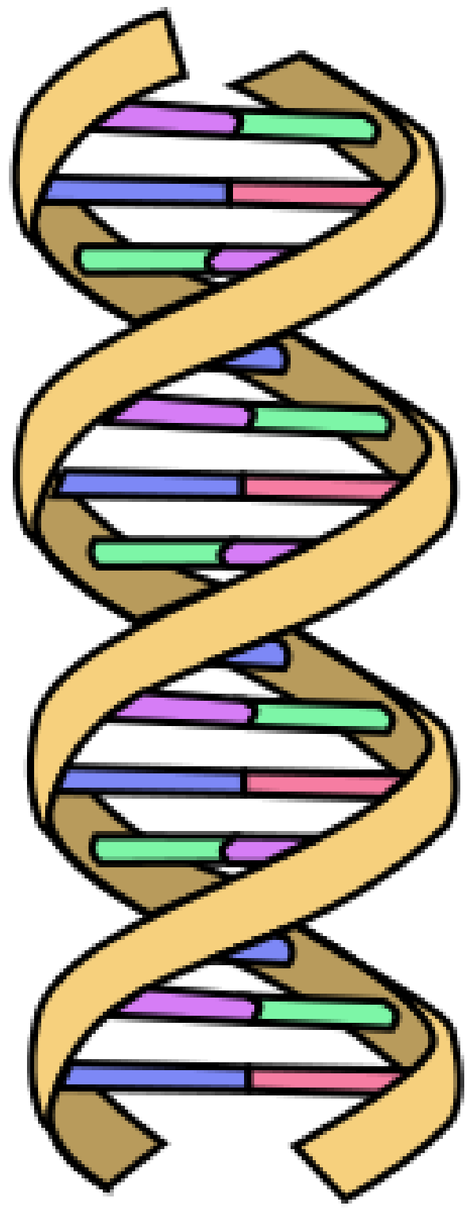
DNA is double-stranded containing both a sense strand and an antisense strand. Therefore, the complementary sequence will be to the sense strand.

https://en.wikipedia.org/wiki/Nucleic_acid_structure

Draw Illustration

Copy and Label the Illustration in the Space Provided

Illustration



https://frr.wikipedia.org/wiki/DNA

Draw (Copy) the Illustration Here

Interpret a Graph

Write the title of the graph _____

Circle the type of chart this represents

Bar Chart *Line Chart* *Pie Chart* *Other*

If applicable,

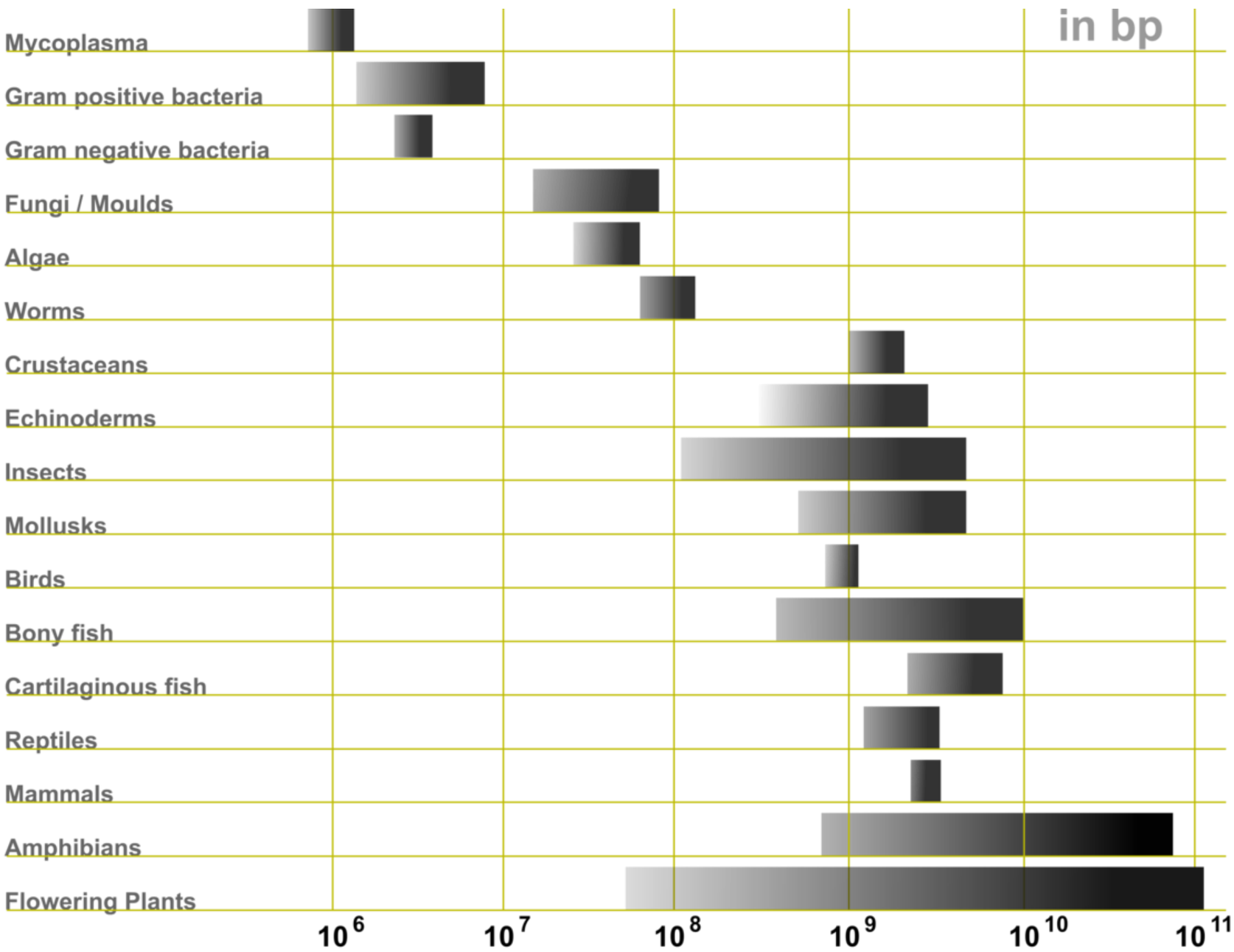
What does the X-axis represent _____

What does the Y-axis imply _____

Summarize what this graph represents or conveys

_____

https://en.wikipedia.org/wiki/Genome_size



Show-Off Your Smarts!

Instructions

- Complete as an individual or small group.
- Discuss your ideas/answers/responses in a small group.
- Select one person to present your responses to the class.

Q1. How can this information be applied to a young-person's life?

Q2. How does this information apply to (or impact) communities?

Q3. When do scientists need to apply this information? How?

Q4. How would a person from 100 years ago view this information?

Q5. How does this topic connect to other science topics or math?

Write down at least three words introduced or covered by this topic.

1.
2.
3.
4.
5.
6.

Make a Poster

In the space provided here, create/draw a poster which conveys the concepts you have learned on this topic.