

DNA Replication

Read Chapter 8.1-8.2

Fill in the Blanks

1. DNA is a macromolecule made up of building blocks called _____.
2. Each nucleotide is made up of a 5- carbon sugar, _____ and a _____.
3. _____ is a nucleotide that is only found in RNA.
4. Adenine always binds with _____.
5. Guanine always binds with _____.
6. Humans have _____ number of chromosomes.
7. The sugar molecule in nucleotides is _____ in DNA and _____ in RNA.
8. The carbon atoms in each sugar is numbered, 1-5. Carbon # _____ is connected to the nitrogenous base. Carbon # _____ will contain an OH group if it is an RNA nucleotide and will contain _____ if it is a DNA nucleotide.
9. DNA is composed of 2 strands of DNA twisted into a _____ structure.
10. DNA strands are complementary and oriented in opposite directions, making the strands _____. One end of a DNA strand is labeled as 3' and the opposite end is _____.
11. A nucleotide contains a sugar, a phosphate and a base, a nucleoside contains a _____ and a _____.
12. All eukaryotic chromosomes have protective sequences at each end called _____.
13. The enzyme that reverses the shortening of chromosomes during replication is called _____.
14. Shortening of telomeres is _____ (normal or abnormal) and is why all living things have a lifespan.
15. DNA replicates according to a method known as _____: the original strands of DNA separate and act as a template for two new strands of DNA.

16. DNA replication begins at a specific location in the genome, called the _____

17. Fill in the following chart

Enzyme	Function
Helicase	
	Stabilizes single strands of DNA
Polymerase	
Primase	
	Seals gaps between nucleotides after primers are removed and replaced with DNA

18. Put the following steps of DNA replication in order.

- Polymerase adds nucleotides _____
- Helicase unwinds the DNA _____
- Single strands of DNA are stabilized _____
- RNA primers are added _____
- Ligase seals gaps _____
- RNA primers are removed and replaced with DNA _____

19. Polymerase adds new nucleotides in the _____ to _____ direction.

20. The _____ strand is used to form Okazaki fragments.

21. _____ is an enzyme used to relieve supercoils.

22. Here is a strand of DNA, write the complementary strand below it.

3' ATGCGATAG 5'
