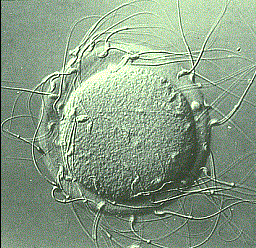
Name: \_\_\_\_\_\_\_\_\_\_\_

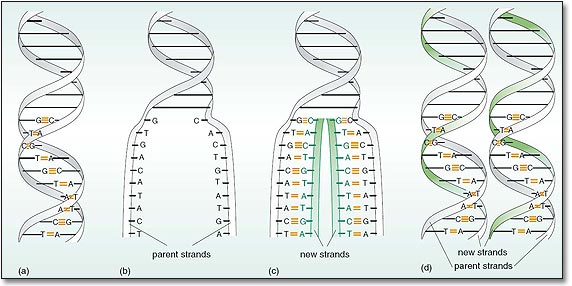
**Main Ideas Title: DNA Replication** Period: \_\_\_ Seat:\_\_

DNA Replication DNA Replication is the process of making \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ copy of DNA

This occurs inside the nucleus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by mitosis, meiosis or binary fission (cytoplasm)

Semi-Conservative Each of the new DNA molecules are exact copies of each other.

Model \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Step 1: Unzipping Helicase enzymes bind to an origin of replication and unzip the two

the DNA strands by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_…

creating a replication bubble and replication forks

-Single stranded binding proteins bind to the strands to prevent them from

re-connecting

-Topoisomerase helps relieve strain in the rest of the DNA molecule



Pro vs. Eu Prokaryotes have \_\_\_ origin of replication. Eukaryotes have \_\_\_\_\_\_\_\_\_\_ origins of replication

Step 2: Adding -\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (sequence of 5-

10 RNA nucleotides) Nucleotides to start the process

-DNA polymerase III adds new nucleotides to the 3’ end, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Where is the Nucleotides arrive as nucleosides with 3 phosphate groups!

energy coming \*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-

from?

Leading vs. Leading strand- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and DNA

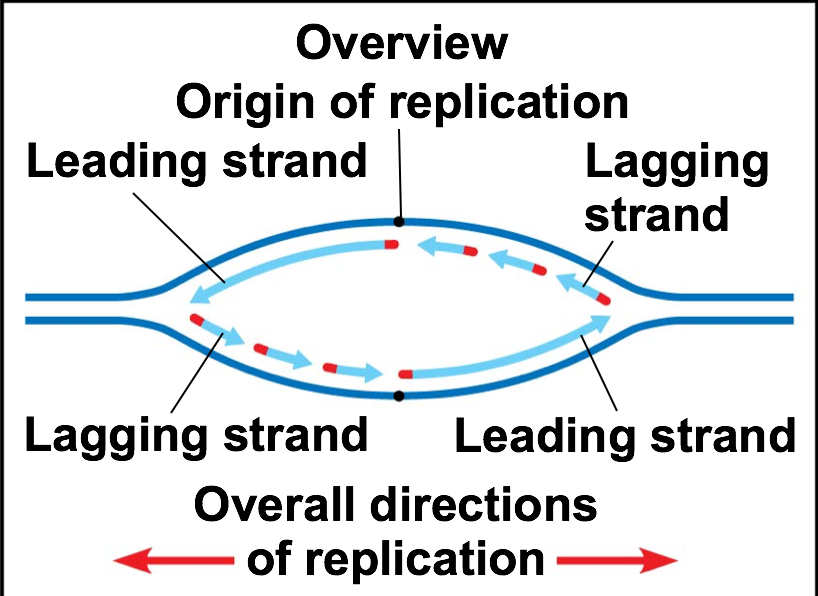
Lagging Strand polymerase III continuously adds nucleotides 5’ 🡪 3’ direction

Lagging strand- The strand that goes in the 3’ 🡪 5’ direction so DNA polymerase III does not

work

\*Many primers are needed and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Lagging Strand 1) RNA primase adds RNA primer

2) DNA Polymerase III adds nucleotides in 5’ to 3’ direction

3) DNA Poly III detaches when it reaches next primer

4) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Proofreading and -DNA polymerase enzymes have proofreading mechanism… only 1 in 10 billion errors

Repair -\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: other enzymes review DNA, cuts out and replaces

 incorrect nucleotides

-Nucleotide excision repair- damaged DNA is cut out and replaced

Ex: Thymine dimers ---Xeroderma pigmentosum

Mutations \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

The proteins may work better or cause the organism to look different

Replicating Telomeres are repeat segments of TTAGGG at the ends of DNA molecules

Telomeres \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Telomerase enzymes lengthen ends but only in germ cells, cancer cells and stem cells

Summary