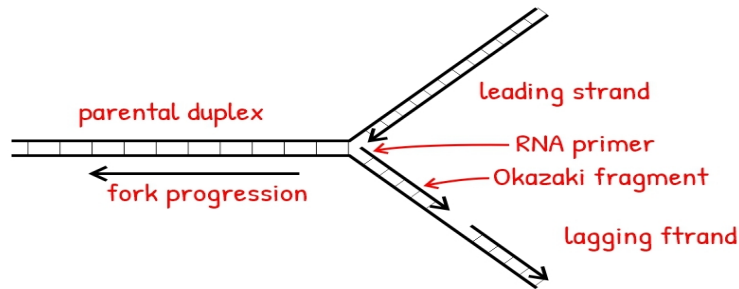


Name answer key

Date \_\_\_\_\_

## DNA REPLICATION

1. Draw a picture of the replication fork and label all the components!



2. How are Okazaki fragments on the lagging strand joined into one continuous strand?  
DNA polymerase I replaces primer with DNA nucleotides. Ligase stitches Okazaki fragments together
3. How do eukaryotes speed the process of replication – since they have multiple long chromosomes?  
By using many origins of replication on each chromosome
4. What is the difference between the way the leading strand and the lagging strand is synthesized?  
Leading strand is synthesized continuously, lagging in fragments (Okazaki)
5. How is DNA packaged in eukaryotes? Describe the different size fibers and the proteins they use.  
DNA wraps around histone proteins (10nm) – now "beads on a string" are coiled together making a 30nm fiber. 30 nm fiber is coiled into looped domains (300nm) around a protein scaffold in the center. 300 nm fibers are coiled into 700nm for a single chromosome. Replicated state is 1400 nm.
6. What Helicase and Ligase is?  
Helicases are a class of enzymes thought to be vital to all organisms  
Ligase is an enzyme that can catalyze the joining (ligation) of two large molecules by forming a new chemical bond