Active Learning: DNA Replication Activity				
Each person in the group chooses a DNA Replication Component. Take 10mins using your smart phones and computers to research these and fill in the table. Assist your team members with theirs if you finish early.				
DNA Replication Component	***What is its Function***	***What happens if function is impaired***	***Does this component have any limitations***	***When does it function relative to the others***
DNA Polymerase I	strings together deoxyribonucleotides as it removes and replaces the RNA primer	Replication cannot proceed or ecessive mistakes in copying are made, leading to mutations	can only polymerize DNA in a 5'-3' manner and requires a foundation from which to start DNA polymerization	After DNA polymerase III and before Ligase
Ligase and Okazaki fragments	Enzyme that catalyzes final phosphodiester bond between adjacent okazaki fragments (segments of lagging strand) and corresponding leading strand after primers have been replaced with deoxyribonucleotides	Likely strand dissociations and DNA damage		Ligase is the last of these components and functions after DNA polymerase I
DNA Polymerase III	Main polymerase enzyme that strings together deoxyribonucleotides	Replication cannot proceed or ecessive mistakes in copying are made, leading to mutations	can only polymerize DNA in a 5'-3' manner and requires a foundation from which to start DNA polymerization	After primase and before DNA polymerase I
Primase and the primer	Primase is an enzyme that polymerizes a short, temporary RNA-based primer so that DNA polymerase will have some foundation in which to start DNA synthesis	DNA Replication cannot proceed	primase can only string ribonucleotides together in a 5'-3' manner	After SSBPs and before DNA polymerase III
Helicase and SSBPs	Enzyme at the front end of a DNA replication fork that unwinds the DNA double helix by separating its complementary bases	DNA Replication cannot begin because the template strands wont be seperated		Helicase is the first of these components and functions just before the SSBPs
Topoisomerase	Enzyme that works ahead of the replication fork to cut and then reseal the double helix in order to relieve accumulated torsional stress	DNA supercoiling and breakage		It functions after but in concert with Helicase

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DNA Polymerase I				
Ligase and Okazaki fragments				
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Primase and the primer				
Helicase and SSBPs				
Topoisomerase				