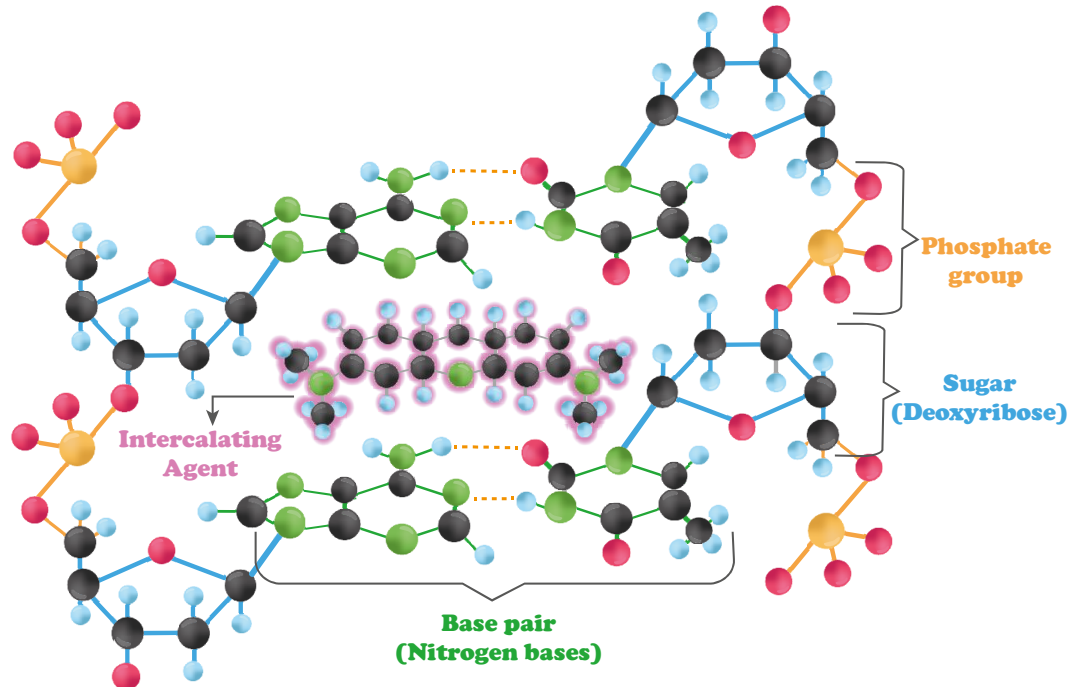


CONCEPT: INDUCED MUTATIONS

- **Mutagenesis** is the process of creating mutations in a laboratory by exposing DNA to mutagens (substances that mutate)
 - **Base analogs** are chemicals that resemble bases and can induce mutations
 - **Alkylating agents** donate an alkyl group and alters proper base affinities (causes transition mutations)
 - **Intercalating agents** are chemicals that wedge between DNA bases and cause helix distortions
 - Block DNA _____ and repair
 - **Base damage** is damage that prevents base pairings
 - UV light can induce pyrimidine dimers
 - Ionizing radiation (X-rays, gamma rays) causes DNA damage by creating free radicals

EXAMPLE:



- The **Ames test** is used to test chemicals for their ability to cause mutations
 - Bacteria are exposed to _____ and scientists examine mutation rates
 - For chemicals modified in the body, they are exposed to rat liver extracts
 - The enzymes in the liver will breakdown the chemicals
 - These processed chemicals are then tested for their ability to cause mutations