ADVANCED BIOLOGY: THE MOLECULAR BASIS OF INHERITANCE

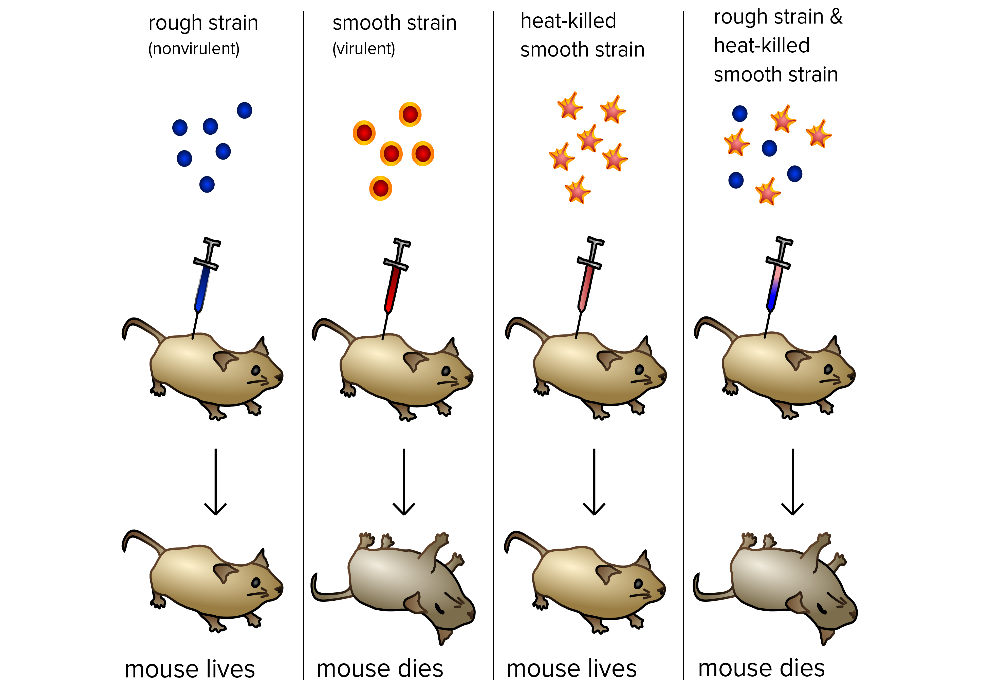
(USE CHAPTER 16 and 20 AS A RESOURCE)

DNA IS THE GENETIC MATERIAL

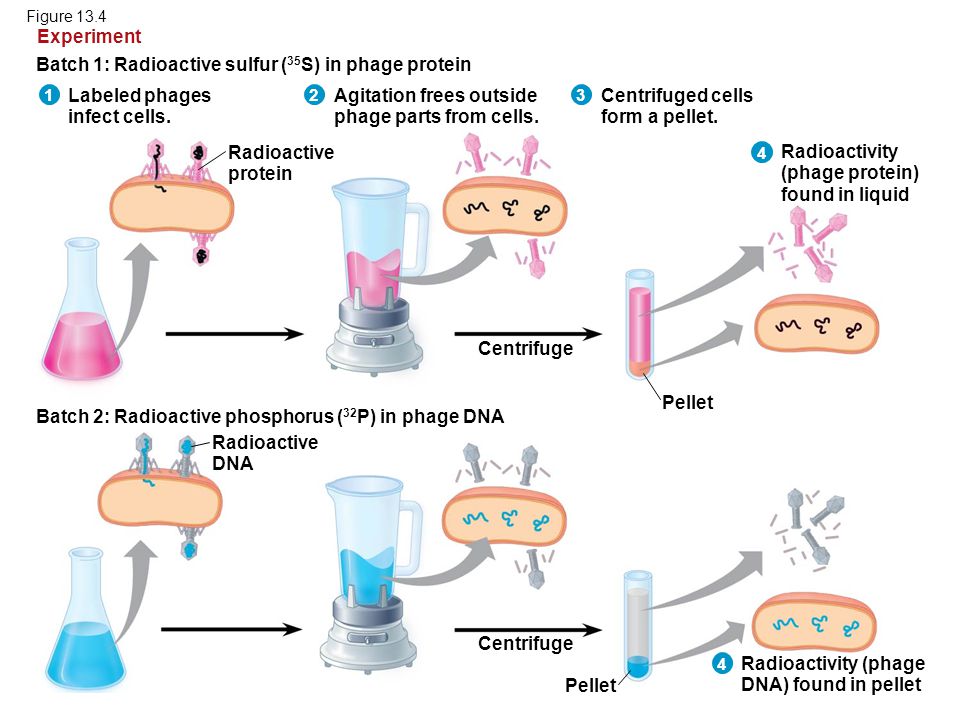
1. The Search for the Genetic Material: Scientific Inquiry

Protein or DNA

1. Evidence that DNA can Transform Bacteria



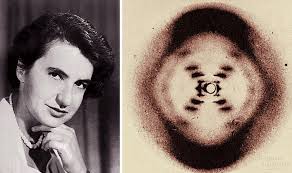
1. Evidence That Viral DNA Can Program Cells

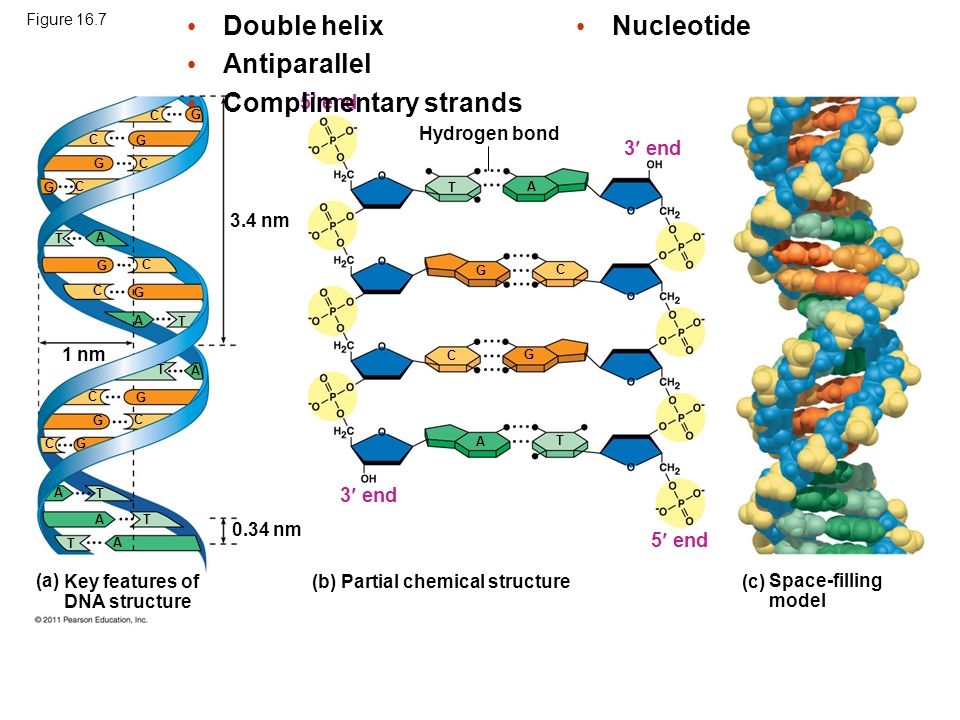


1. Additional Evidence that DNA Is the Genetic Material

Chargaff’s Rules

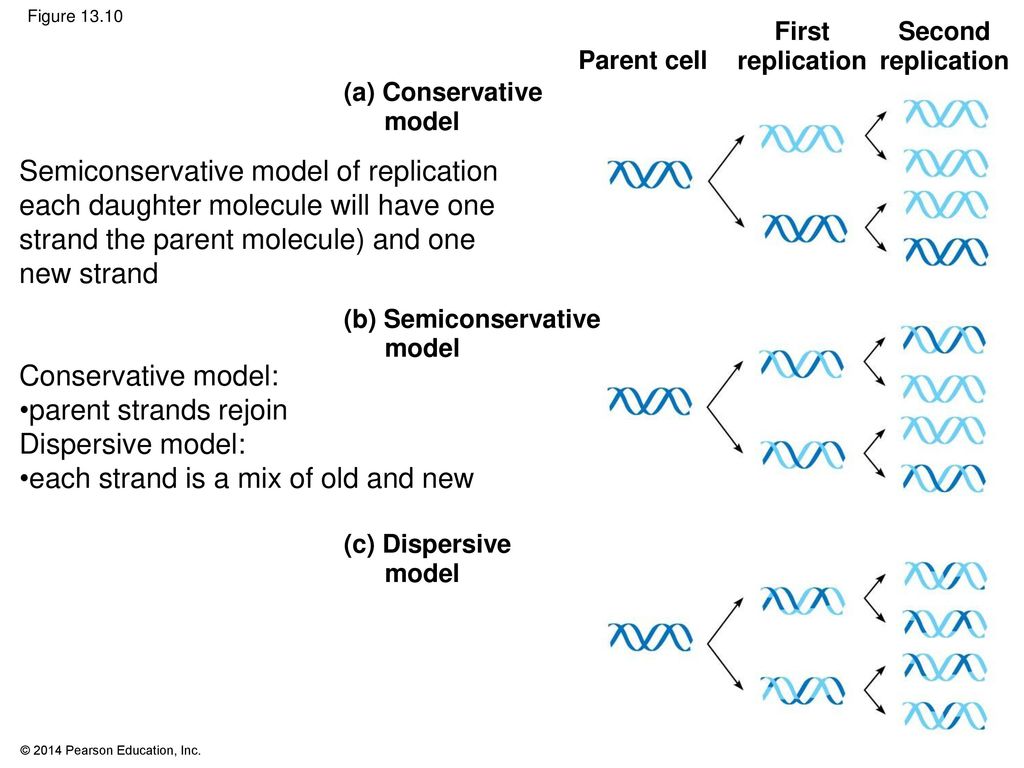
1. Building a Structural Model of DNA: Scientific Inquiry



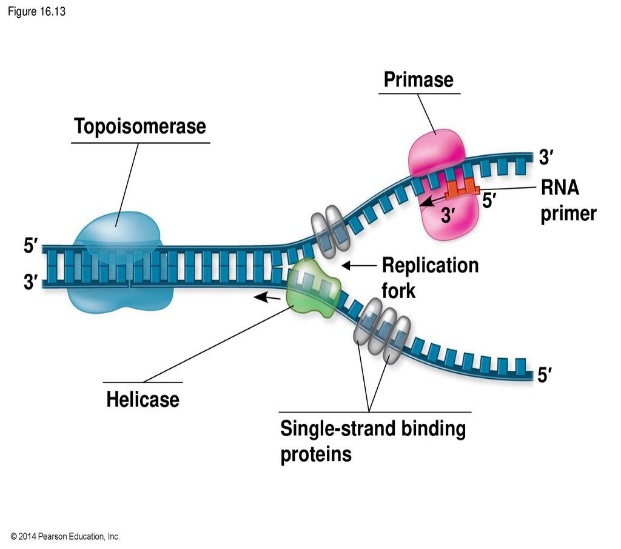


MANY PROTEINS WORK TOGETHER IN DNA REPLICATION AND REPAIR

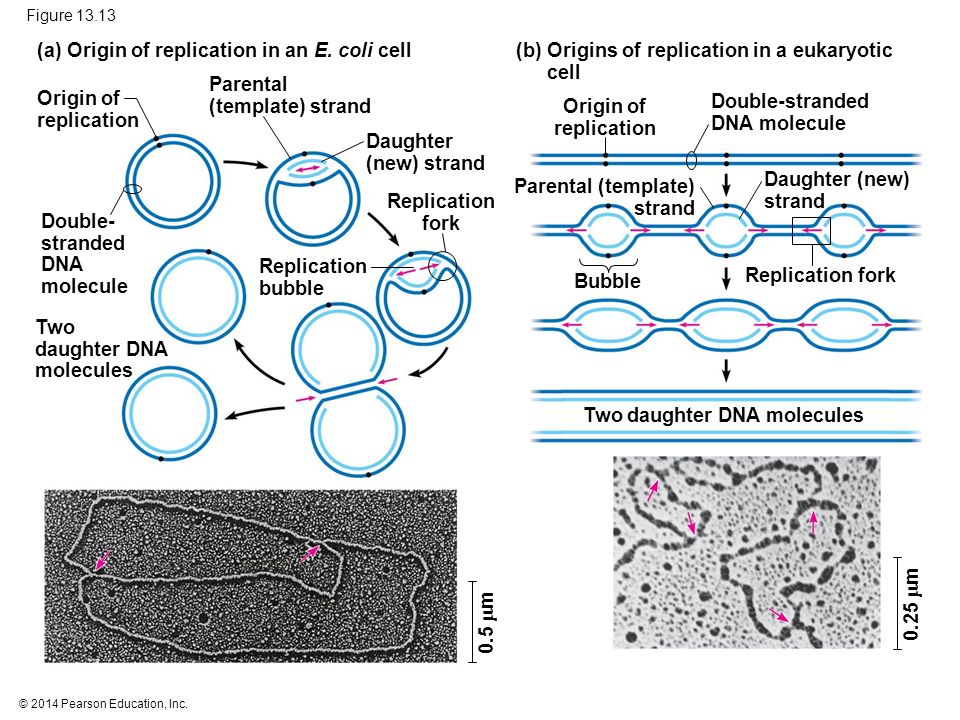
1. The Basic Principle: Base Pairing to a Template Strand



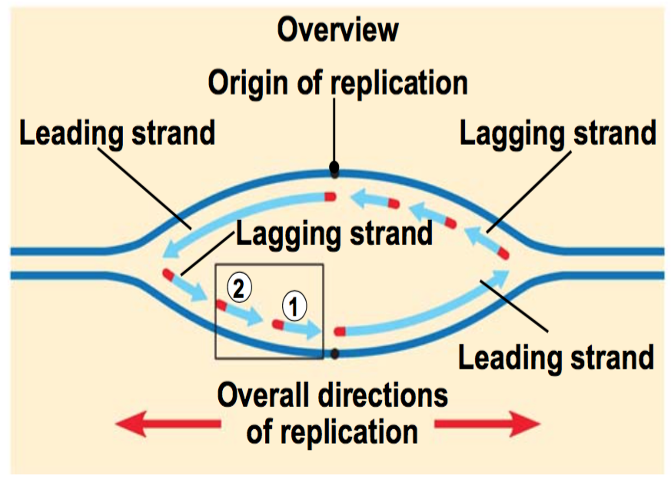
1. DNA Replication: A Closer Look
2. Size of the genome
3. Getting Started

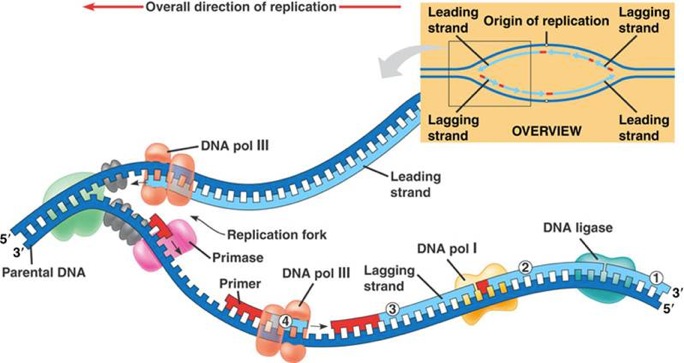


1. Synthesizing a New DNA Strand



1. Antiparallel Elongation





1. The DNA Replication Complex
2. Proofreading and Repairing DNA
3. Mismatch repair
4. Nuclease
5. Nucleotide excision repair
6. Evolutionary Significance of Altered DNA Nucleotides
7. Replicating the Ends of DNA Molecules

A CHROMOSOME CONSISTS OF A DNA MOLECULE PACKED TOGETHER WITH PROTEINS

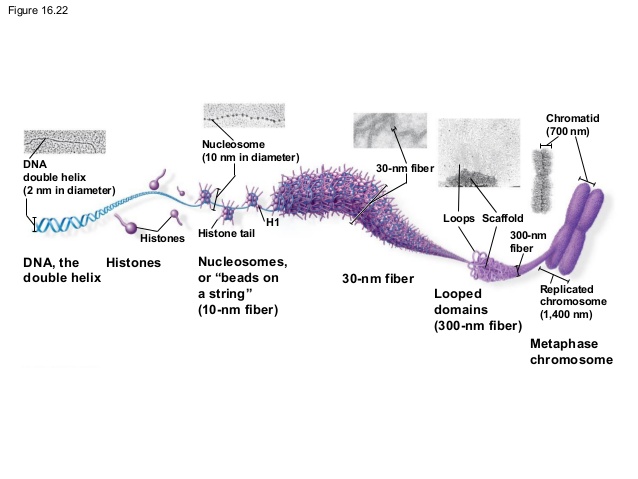
Size of the Bacterial chromosome

Nucleoid region

Size of the Eukaryotic Chromosomes

Chromatin

* Heterochromatin
* Euchromatin

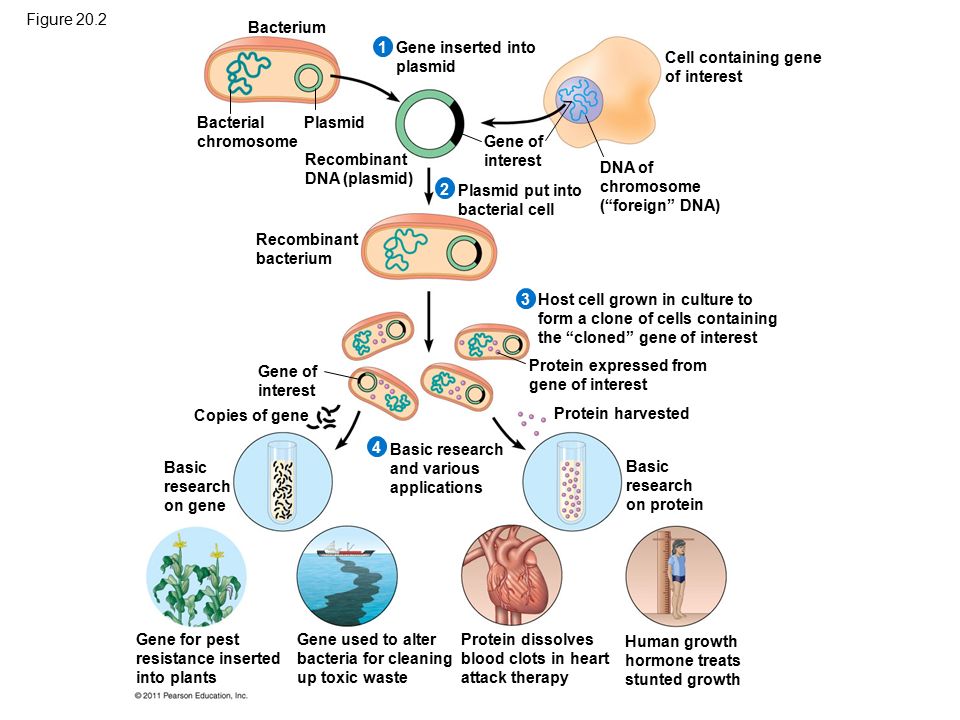


UNDERSTANDING DNA STRUCTURE AND REPLICATION MAKES GENETIC ENGINEERING POSSIBLE

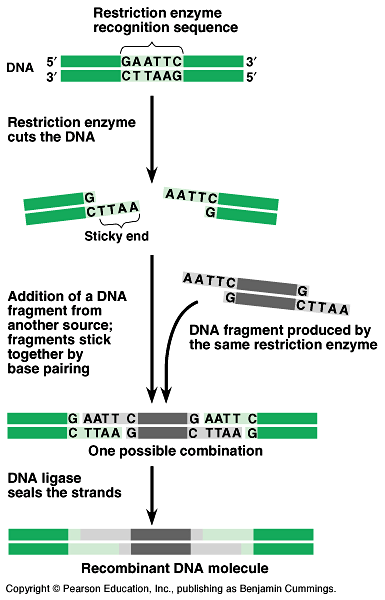
Nucleic Acid Hybridization

Genetic Engineering

1. DNA Cloning: Making Multiple Copies of a Gene or Other DNA Segment

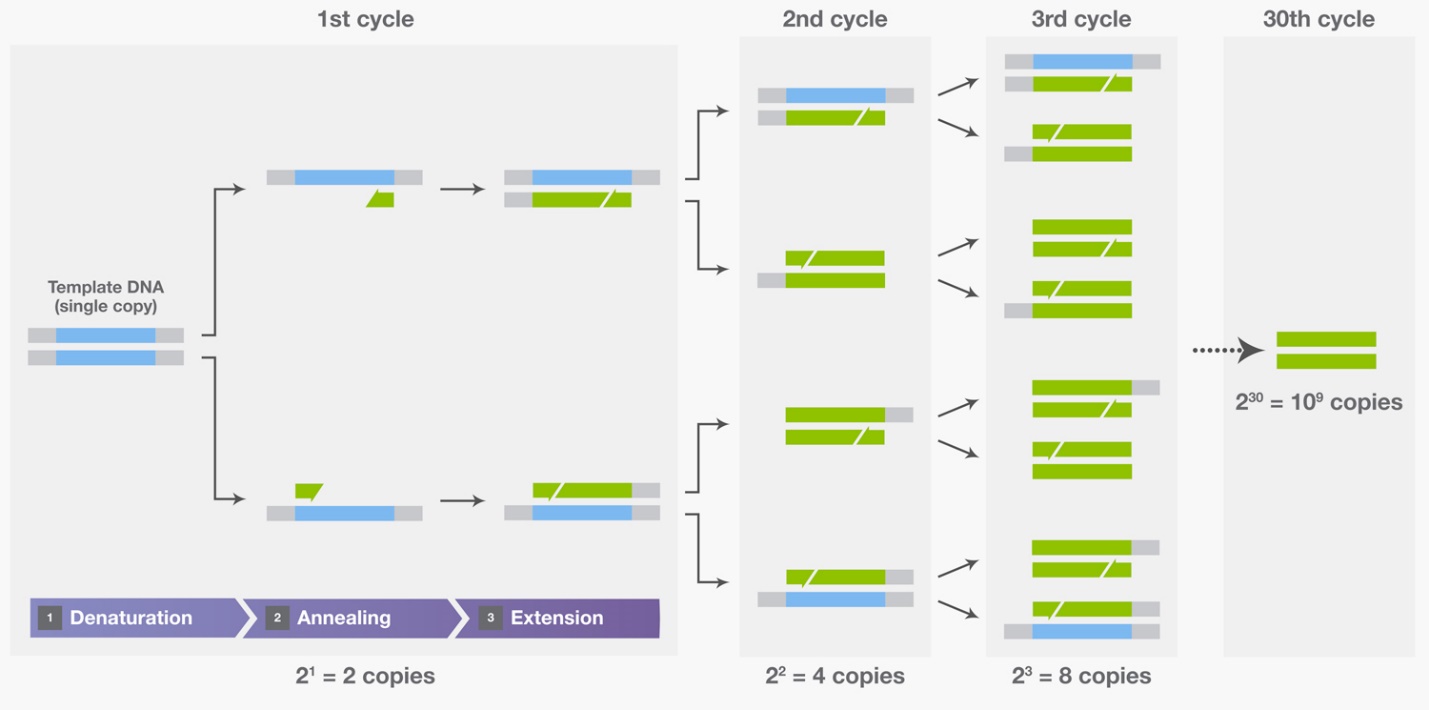


1. Plasmids
2. Recombinant DNA
3. Gene Cloning
4. Using Restriction Enzymes to Make Recombinant DNA





1. Amplifying DNA in Vitro: PCR and its use in cloning



1. DNA Sequencing