Unit 6 DNA
Chapters 16-20

Day	Learning Objective	Activities	HW
Thurs. 1/21	Ch. 16 Intro to DNA/DNA Replication	DNA model	Ch 16 MC Practice
Mon. 1/25	Ch. 17 Transcription	**Ch. 16 Quiz**	Online Protein Synthesis tutorial
Tues. 1/26	Ch. 17: Translation	Ch. 17 MC Practice	Essay #1
Thurs. 1/28	Ch. 18: Gene Regulation	**Ch. 16-17 Quiz**	Ch 18 MC Practice
Mon. 2/1	Ch 19: Viruses Ch. 20: Biotechnology		Essay #2
Tues. 2/2	Review	**Ch. 16-20 Quiz**	
Thurs. 2/3		**FINAL EXAM – Semester 1**	

#	Assignment		Date due	Points possible	Points earned
1	Ch 16 MC practice			30	
2	Protein Synthesis tutorial			50	
3	Essay Practice #1			40	
4	Ch 17 MC practice			30	
6	Essay Practice #2			40	
7					
8					
9					
	Unit 6 Assignment total			190	

	Assessment		Date	Points possible	Points earned
	Quiz 6.1		Thurs. 1/8	30	
	Quiz 6.2		Tues. 1/13	50	
	Quiz 6.3		Thurs. 1/22	80	
	Semester 1 Final Exam		**Wed. 1/28**	**200**	

AP Biology Outline for DNA

A. Watson-Crick Model of Nucleic Acids

B. Replication of DNA molecule

C. Genetic code and chemical nature of mutation

D. Control of protein synthesis:
transcription and translation

E. Recombinant DNA techniques

F. Gene regulation:
structural and regulatory genes

G. Principles of transformation and transduction

UNIT 6 ESSAY QUESTION #1

Experiments by the following scientists provided critical information concerning DNA. Describe each classical experiment and indicate how it provided evidence for the chemical nature of the gene.

a. Hershey and Chase - bacteriophage replication
b. Griffith and Avery - bacterial transformation
c. Meselson and Stahl - DNA replication in bacteria

UNIT 6 ESSAY QUESTION #2

Describe the steps of protein synthesis, **beginning with** the attachment of a messenger RNA molecule to the small subunit of a ribosome and **ending with** the release of the polypeptide from the ribosome. Include in your answer a discussion of how the different types of RNA function in this process.

UNIT 6 ESSAY QUESTION #3

A pharmaceutical company is planning on using bacteria to make a protein that is critical in the formation of blood clots. They know the DNA sequence the creates this protein, but have not located it on the human genome.

a) Describe a technique by which this gene could be located on the human genome.

b) Describe the process by which this gene can be cloned and expressed by bacteria.

c) Several complications arise when using prokaryotic cells to express eukaryotic genes. Explain ONE of these complications and describe a technique by which this problem can be solved.

CHAPTER 16: The Molecular Basis of Inheritance

garrod
Beagle
ribozyme
translocation
triphosphate nucleotide
auxotroph
1 gene-1 enzyme
trailer sequence
1 gene-1 polypeptide
base pair substitution
transcription
nonsense mutation
exon
initation factors
snRNPS
start codon
promotor
terminator
tRNA
Tatum
CAP
termination codon
release factor
wobble effect
redunance
ribosome
rRNA
P site
codon
insertion
RNA splicing
frameshift mutation
sn RNA
reading frame
elongation factor
peptidyl transferase
anticodon
neurospora
poly-A tail
leader sequence
aminoacyl tRNA synthetas
point mutation
hn RNA
missense mutation
intron
A site
mRNA
deletion
RNA polymerase
mutagenesis
mutgens

CHAPTER 17: From Gene to Protein

phage
prophage
lysogenic conversion
horizontal transmission
virus
verticla transmission
virion
repressor
corepressor
episome
retrovirus
T-even phage
Monod
transposon
vaccine
reverse transription
negative control
inverted repeats
plasmid
lysogenic cycle
cAMP
direct repeats
transduction
conjugation
F factor
F cell
polycistronic mRNA
Hfr cell
viroids
capsid
envelope
inducer
nonepisomal plasmid
HIV virus
obligate parasite
lac operon
McClintock
oncogene
host range
positive control
insertion sequences
binary fission
virulent
restriction enzymes
gene repression
structural gene
regulatory gene
operon
tobacco mosaic virus
operator
pili
conjugation tube
herpes virus
bacteriophage
Jacob
R plasmid
provirus
reverse transscriptase
trp operon
transponase
nucleoid region
lytic cycle
CAP
complex transposons
transformation
feedback inhibition

CHAPTER 18: Genetics of Viruses & Bacteria

cellular differentiation
inhibitory protein
chromotin
oncogenes
immunoglobulins
multigen family
pseudogene
gene amplification
heterochromotin
euchromatin
satellite DNA
histones
proto-oncogenes
transcription factor
steroid receptor
enhancer
chromosome diminution
carcinogens
DNA methylation
telomere
nucleosome fiber
tumor-suppressor
looped genes

CHAPTER 19: Eukaryotic Genomes

recombinant DNA
PCR
subunits
reverse transcriptase
retroviruses
vector
restriction enzymes
transgenic animals
dideoxyribonucleotide
T DNA
modification
DNA ligase
biotechnology
plasmid DNA
gene-splicing
vaccinia
probe
recombinant plasmid
cleavage site
Ti plasmid
restriction
genomic library
RFLPs
plasmid
human genome project
transformation
phage
EPO
Sanger method
gene cloning
bacteriophage
in situ hybridization
gene mapping
sticky ends
restriction fragments
cDNA
physical mapping
microinjection
electroporation