Goal 3

3.01

1. 5-Carbon sugar called deoxyribose, a phosphate and a nitrogen base
2. deoxyribose adenine, guanine, cytosine, thymine
3. CTGGCT
4. CUGACU
5. Leu, Thr
6. a specific sequence of 3 adjacent nucleotides on a strand of DNA or RNA that specifies the genetic code information.
7.

	RNA	**DNA**
Sugars	Ribose	Deoxyribose
Bases	Adenine, guanine, uracil, cytosine	Adenine, guanine, thymine, cytosine
Strands 1 or 2`	1	2
Where in the cell	Nucleus ribosomes mitochondria	Nucleus
Function	Protein synthesis; assembly of amino acids into proteins	Genetic instructions

8. Peptide bonds
9. mRNA- carries info from DNA in the nucleus to the ribosomes
   rRNA- makes up the major part of ribosomes, it provides a mechanism for decoding
   tRNA- brings the necessary amino acids corresponding to the appropriate mRNA codon.
10. hydrogen bonds
11. they have to split when DNA replicates
12. permanent change in the DNA that can be harmful to the person
13. Affects the efficiency of its translation
14. it won't read over correctly
15. occur in a gene, and a gene encodes a protein. When the gene is messed up so is the protein. Mutation will bind the DNA and form a different shape.

Cell Cycle:

1. 2nd part of interphase s Phase
2. GI- is a period of activity in which cells do most of their growing; G2 when many of the organelles and molecules required for cell division are produced.
3. yes

3.02

	MITOSIS	**MEIOSIS**
Type of reproduction	Asexual	Sexual

Chromosome number of mother cell	Diploid	Diploid
Chromosome number of daughter cells	Diploid	Haploid
Number of cell divisions	1	2
Number of cells produced	2	4
When does replication happen?		
Sources of variation	**Yes or No**	**Yes or No**
Crossing over	Prophase 1, synapsis, chiosma	
Random assortment of chromosomes	Homologs align at equational plates independent of eachother	
Gene mutations		yes
Nondisjunction		Yes
Fertilization	No	yes

A- Anaphase
B- Interphase
C- Prophase
D- Telophase
E- Metaphase

3.03

1. Tt, Tt
2. Tall
3. TT, Tt, tt 75% Tall 25% Short
4. 1:2:1
5. 3:1
6. The parent alleles
7. Geno- RW Pheno- Pink

Sickle cell anemia: autosomal recessive
Cystic fibrosis: Autosomal recessive
Huntington Disease: Autosomal dominant
Color- blindness: Sex linked
Hemophilia: Sex Linked

Blood Type:
1. Fill in the punnent square
2. 25%
3. 25%

4. 25%
5. Type AB b/c he won't have the recessive gene for type O.

Polygenic Traits:

1. they are controlled by 2 or more genes
2. Height

Sex Chromosomes:

1. XY
2. XX
3. X chromosome
4. Fill in the punnent square
5. 25%
6. 0
7. 25%
8. because they only have one chromosome that can carry a trait

Karyotype:

1. Female
2. Downs Syndrome-T21 has 3 chromosomes
3. Mental retardation, congenital organ defects, respiratory infections, leukemia

Pedigrees:

1. Recessive
2. parents are not affected
3. aa
4. Aa

Mendels laws:

1. States that allele pairs separate or segregate during gamete formation and randomly unite at fertilization.
2. states that genes for different traits can segregate independently during the formation of gametes. Independent assortment helps account for the many genetic variations observed in plans and animals and other organisms.
3. With assortment in meiosis the daughter cells from meiosis I split into four cells. Then the sister cells can recombine with the genes from the other parent. There ore, the fnal daughter cells have different possible genetic combinations. Segregation of chromosomes during meiosis is random.
4. 25% silver 73% brown 1:2:1

3.04

1. an effort to analyze the human DNA sequence by mapping it out.
2. They will be able to tell you the chance your baby could have a condition.
3. The information about the human genome could be used to know what gene they are missing to replace it. OR tell if you may be a carrier of a specific disease

4. No because the DNA does not match
5. 1 and 4 bottom because longer pieces move slowly
6. forensics

Transgenic organisms:

1. during transformation a cell take s in DNA from the outside the cell. This external DNA becomes a component of the cells DNA
2. they can cure diseases
3. they are used for monoclonal antibodies, growth hormones, erythropoelin, coagulant factors
4. that people could alter babies or clone.

Stem Cells:

1. they will reverse the effects of brain and spinal cord injuries. Grow organs and reverse affects of diseases
2. killing of a possible life

3.05

	Discussion of importance to evolutionary theory
Understanding of geology	geological features such as rock to show earth was millions of years old.
Malthus' ideas about population growth	Stated that the human pop. Will grow faster than the space and food supplies need to sustain life.
Anatomical comparisons	Homologous structures provide strong evidence that 4 limbed vertebrates have descended from common ansestors.
Patterns in fossil evidence	History of animals on earth and show how different groups of organisms have changed over time.
Lamarck's ideas about inheritance of acquired characteristics	He realized that organisms were somehow adapted to their environment that living things have changed over time and that all species desended from other species
Biochemical comparisons	The DNA and proteins show that it changed over millions of years through organisms
The role of variations	There has to be heritable variation for natural slection to work
The role of sexual reproduction	Gives a new set of genes so it goes along with natural selection
The role of geographic isolation	Made it where it was easier to study the animals because there was only one kind of

	animal dominant lie finches that Darwin studied. Tortises.
The importance of the environment	The animal has to adapt to their environment so in order to do that they'd have to have natural selection

1. From mutations and genetic shuffling that results from sexual reproduction
2. there would be competition or struggle for existence
3. It is any inherited characteristics that increases an organisms chance of survival.
4. depending on hwere an organism lives is hwat adaptations they will get to better reproduce and survive.
5. better adapted to get food and or reproduce
6. they have more alleles for that gene. Evolving
7. evolutionary process by which new biological species arise.
8. one bacteria will survive antibiotic. It can multiply replace bacteria that was killed off. Then through mutation of their genetic material aquiring DNA that codes for resistance properties from other DNA.
9. abiogenesis- life spontaneously from nonliving
   biogeneis- life comes from life

10. he was the first to explain the organic basis and control of fermentation which let towards bacteriology and the demolition of abiogenesis.
11. stated that conditions on primitive earth favored chemical reactions that synthesized organic compounds from inorganic precursers.
12. It was a mixture of materials thought to be present on earth at the origin of life.
13. after performing test the end result was amino acids and other complx molecules.
14. the experiment established that natural processes could produce the building blocks of life without requiring life to synthesize them in the first place.
15. they are simple with no membrane bound organelles. They are unicellular. Atmosphere had little oxygen.
16. They were organisms that could make their own food by photosynthesis.
17. oxygen
18. when photosynthesis started, O2 began to accumulated aeorobic heterotrophs could evolve with oxygen as a energy source
19. Rose from symbioses and geneteic exchangeds between prokaryotes.