DNA Tech Study Guide

1. What is the purpose of the Human Genome Project? \_map of all genes on all chromosomes\_\_\_
2. What is an example of a genetically engineered plant? \_frost resistant strawberries\_\_\_\_\_\_
3. What process creates an exact genetic copy of an organism? \_cloning\_\_\_\_\_
4. What is the goal, or purpose, of gene therapy? \_\_create medicines/care or treat diseases\_\_\_\_
5. What is the goal, or purpose, of in vitro fertilization? Create a baby when parents can’t naturally\_\_\_\_\_
6. How could scientists use genetic engineering to create insulin from bacteria? Explain this process.  
   1. Cut DNA with restriction Enzymes 2. Insert foreign DNA

3. Insert back into bacterium 4. Manufacture the insulin in factory

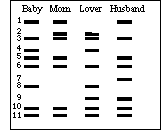
1. What enzymes “cut” DNA to create recombinant DNA, or rDNA? \_\_restriction enzymes\_\_\_\_\_
2. What enzymes “glue” the DNA together to create rDNA? \_\_DNA ligase\_\_\_
3. What is the circular ring of DNA in a bacteria cell called? \_\_\_plasmid\_\_\_\_\_\_\_\_\_
4. What is a vector? \_\_organism that new DNA is put into to create a GMO and DNA molecule that transfers recombinant DNA into a living cell\_\_\_\_\_\_
5. What are the base pairs of DNA? \_A-T and C-G\_\_\_
6. How are mutations related to base pairs? Cause different codons, amino acids, different proteins which causes disease\_\_\_\_\_
7. Explain the process of gel electrophoresis:
   1. What causes the DNA to move through the gel? Electrical current\_\_\_
   2. How are the bands separated? \_\_size of fragments\_\_
   3. What is a possible application of gel electrophoresis? \_\_paternity, solving crimes, body identification\_\_\_\_\_\_\_\_
8. Put the following terms into the correct order: translation, transcription, creating traits, creating amino acids

1. Transcription 2. Translation 3. Creating amino acids 4. Creating traits

1. What is the purpose of mRNA? \_\_transcription
2. What is the purpose of tRNA? \_\_\_\_translation\_\_\_\_

**Use the Figure Below to Answer Questions 17-20:**

**Questions on Back!**



1. B

2. A and D

3. B

4. C

5. A

1. What is the above image? \_\_DNA fingerprint\_\_
2. What process produced the above image? \_gel electrophoresis\_\_\_
3. Who’s the Baby’s Daddy? \_Husband\_\_\_\_\_
4. How did you determine paternity? \_\_\_half of moms genes/ half of dads genes on fingerprint DNA\_\_\_\_\_