Honors Biology Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
NDHS Per: \_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**DNA Technology Web Quest**

**Directions**: Use the websites and videos on the power point, answer the questions about DNA technology. You may use other websites and videos to help you.

**What is DNA technology?**

**Restriction Enzymes:**

1. What is a restriction enzyme/endonuclease and what does it do to DNA?
2. What is a “sticky end”? How are these used to make recombinant DNA? Define vectors and plasmids in your answer.

**DNA Analysis/Fingerprinting:**

1. What is a VNTR? How are they useful for DNA fingerprinting?

1. What is a STR?
2. What is PCR? Why is it used?
3. What is agarose?

7) How does gel electrophoresis work?

8) Why does DNA move toward the positive end of the electrophoresis chamber?

**DNA Amplification: PCR**

9) What are the steps to PCR?

10) What is PCR? Why is it done?

11) How many copies of DNA are generated after 30 cycles of PCR?

**CORONAVIRUS TESTING**

What are the two ways to test for the coronavirus? Describe each.

* + What is serology?
  + Define:
    - Antigen:
    - Antibody:
  + What doe ELISA stand for? How does it work?
  + Define
    - Analate:
    - Spectrophotometer:

**Forensics:**

12) Who is the guilty party? How can you tell?

**Cloning:**

13) What is Cloning?

14) How does cloning differ from the formation of an identical twin?

 15) What is Somatic Cell Nuclear Transfer? (Make sure you watch the video)

16) How is SCNT used to make clones?

17) Is cloning an organism the same as cloning a gene? Explain.

**Viral Vectors**

18) How can viruses be used in the fight against cancer?

19) How does Gene Therapy work?

**Genetic Engineering:**

20) What is Genetic Engineering?

21) How does CRISPR work?

22) Opinion: Should genetic engineering of humans be done?

**Genetically Modified Organisms:**  
22) Give three pros and three cons for GMOs.

23) How are transgenic plants created? What are the steps?

24) What is Golden Rice?

25) What are the two sides of the debate?

26) How can spider silk be made by goats?

27) What was the most interesting thing you learned?