**DNA Technology: Cloning and PCR**

**Use the in class and electronic resources to research the following technologies. Write all answers on your own DNA TECHNOLOGY paper to be collected Friday.**

**Cloning**

Resources:

Article/Infographic: All About Cloning

Print Copy of Article: Utah Genetics OR

Electronic Article from Utah Genetics <http://learn.genetics.utah.edu/content/cloning/cloningmyths/>

NY Times Video Clip <https://www.youtube.com/watch?v=tELZEPcgKkE>

1. When was Dolly cloned and introduced to the world?
2. How many mothers did Dolly have? Explain the contribution of each.
3. Name three US presidents that overtime worked to pass legislature that would promote, support or halt cloning research. What was the significance of each?
4. True/False: Scientists had attempted the procedure to clone Dolly over 400 times before it was successful.
5. What are at least two other uses of cloning?
6. What are two common myths about cloning? Explain why it is a myth and not fact.
7. After reading and watching about cloning, in your opinion are genes the only factor that influence development? Explain your answer.

**PCR**

Resources:

* Printed Article from NIH National Human Genome Research Institute.
* Electronic Article from NIH National Human Genome Research Institute (click on the infographic for more information) <https://www.genome.gov/10000207/pcr-fact-sheet/>
* Khan Academy Tutorials:
  + <https://www.youtube.com/watch?v=aUBJtHwHASA>
  + <https://www.youtube.com/watch?v=nHi-3jP6Mvc>

1. What does PCR stand for?
2. Explain why PCR is considered “molecular photocopying”.
3. Who created PCR and how was he recognized for the achievement in 1993?
4. The creator of PCR and Mrs. Handest are from the same county in NC. This is also where Eric Church and Madison Bumgarner are from. Where?
5. PCR is not a stand-alone process. It is often used to prepare samples for other technologies. What is PCR used for?
6. True/False: PCR can be used to copy a target gene before insertion into a plasmid.
7. What materials go into the test tube for successful PCR? \*hint: you should have at least four\*
8. Define denature and anneal.
9. What is so special about the Taq Polymerase used in PCR? Why is it the only enzyme that will work to copy the DNA?
10. Draw a graphic to show how ONE double stranded piece of DNA turns into EIGHT double stranded molecules. Highlight the original strand and highlight where those same segments will be in the 3rd round.