**Genetic Engineering, Cloning, The Human Genome Project and DNA Fingerprinting:**

**Genetic Engineering Animation**

http://www.youtube.com/watch?v=AEINuCL-5wc&feature=youtube\_gdata\_player

1. What does diabetic person need to stay regulated?
2. What kind of organism is this produced in?
3. What makes “You…You”?
4. When is an organism “Genetically Modified”?
5. How can you cut the desired gene out?
6. In bacteria, some DNA is found in circles. What is this called?
7. How are the circular pieces from #6 used?
8. How do you insert the desired gene into #6?
9. What is ligase? And what does it do for the gene?
10. What is then placed back into the bacteria?
11. Once #10 is completed, why is it called a “Genetically Modified Organism”?
12. What does the bacteria do after the step in #10 is completed?

**Plasmids | Genetics | Biology** http://www.youtube.com/watch?v=GNMJBMtKKWU&feature=youtube\_gdata\_player

1. What 2 specific genes are mentioned throughout the video, that are used for mass production?

**Gene Therapy** <http://www.youtube.com/watch?v=imL1Zmi3mWk&feature=related>

And: http://www.youtube.com/watch?v=412Z8wOQtY8&feature=related

1. What is carried in the virus?
2. How does this virus effect the liver cell?

**Human Cloning** http://www.youtube.com/watch?v=7tbxN5uwaqA&NR=1&feature=fvwp

1. Name 3 animals that have been cloned.
2. Cloning can create STEM cells that grow into what?
3. Why can’t a cloned person be the exact copy of the original?
4. Do we have proof that a human has been cloned?
5. What has to happen before a human is cloned?

**The Human Genome Project, 3D Animation http://www.youtube.com/watch?v=VJycRYBNtwY&feature=youtube\_gdata\_player**

1. What does all of our cells contain?
2. How many pairs of chromosomes are packed into our nucleus?
3. If the DNA was unwound…How long would it stretch?
4. How many letters have scientists read, to understand our molecular selves?
5. Different sets of genes influence what risks? (Name the 2 that were mentioned)

DNA Fingerprinting/Gel Electrophoresis: http://www.youtube.com/watch?v=PSwlCk\_Z02c&feature=related

1. Write the steps used in Gel electrophoresis: