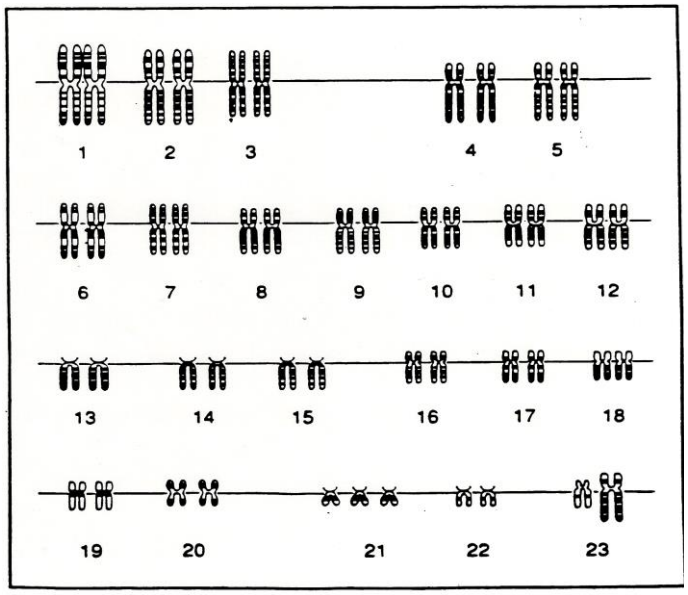
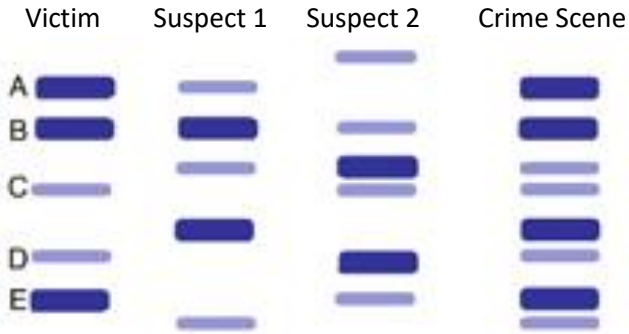
Biotechnology Wrap Up



Karyotypes

1. What is the gender of this individual? How do you know?
2. Does this person have a genetic disorder? If so, what is it?
3. Where does the disorder occur?
4. During what process did the mutation occur?
5. What types of information can you get by reading a karyotype?
6. Which chromosomes are autosomes?

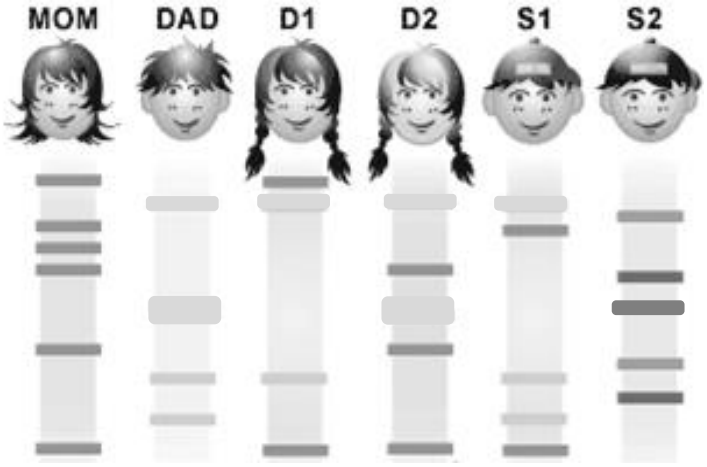


This gel shows you blood collected from the crime scene, the victim and the two suspects.

1. Who is guilty?

2. How did you narrow it down to the correct suspect?

Gel Electrophoresis

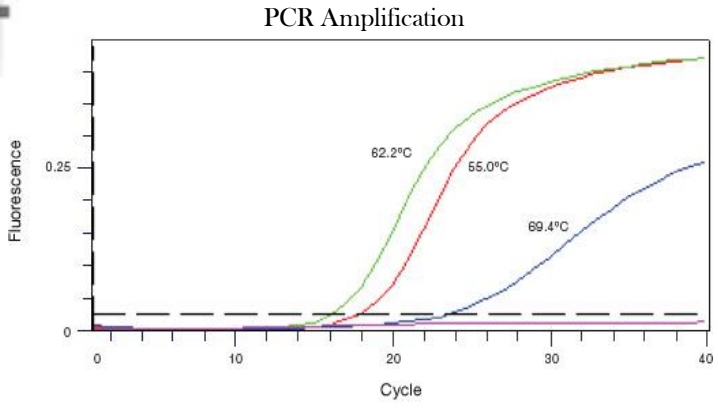


1. Which child could NOT be the son of these two parents?

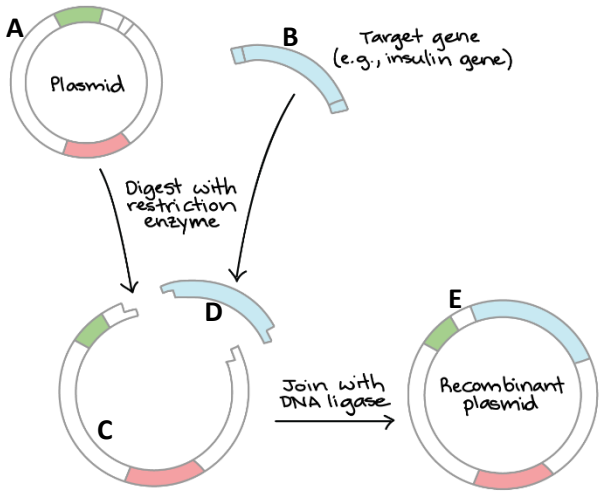
2. How do you know?

3. State two ways information from a procedure like thin can be used.

4. PCR is used to
A. decrease the amount of DNA
B. increase the amount of DNA
C. regulate the temperature of DNA
D. maintain the temperature of DNA



Recombinant DNA



6. What is used to cut the DNA?
A. ligase
B. restriction enzyme
C. recombinant enzyme
D. target gene

1. Which letter represents the bacterial DNA? _____

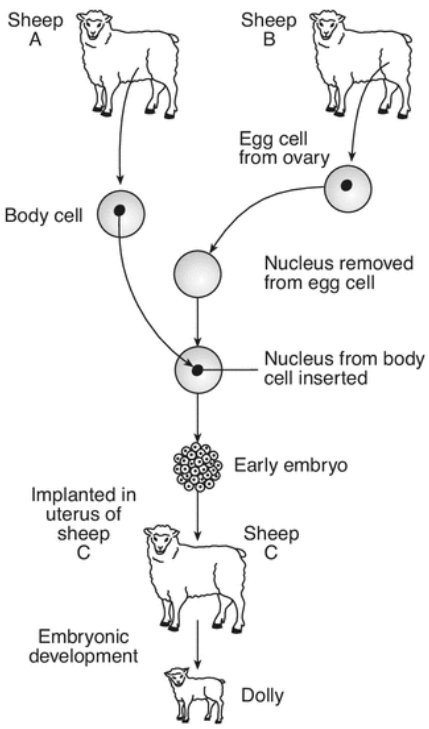
2. Which letter represents the human DNA? _____

3. Which letter represents the bacteria that now produces insulin? _____

4. Which statement describes a possible outcome of this technique?
A. The bacterium is able to produce a human hormone.
B. It allows the bacterium to grow in humans, since it contains a human gene.
C. It allows humans to become immune to an infection from this type of bacteria.

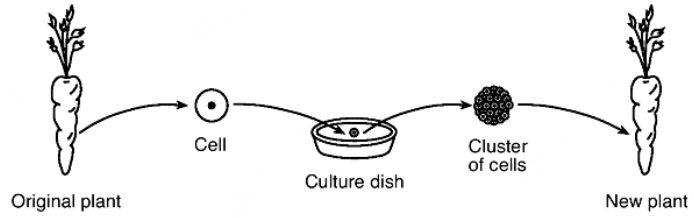
5. What do these genes code for, what is affected by this change?
A. carbohydrate
B. lipid
C. protein
D. nucleic acid

Cloning



1. The diagram above represents the process used to clone
Dolly the sheep. Which statement concerning Dolly is correct?

A. Gametes from sheep A and sheep B were united to make Dolly
B. The genetic makeup of Dolly is identical to sheep A
C. Both Dolly and sheep C have identical DNA
D. Dolly contains genes from sheep B and sheep C



2. Compared to each cell of the original carrot plant, each cell of the new plant will have
A. The same # of chromosomes and the same types of genes
B. The same # of chromosomes but different types of genes
C. Half the # of chromosomes and the same types of genes
D. Half the # of chromosomes but different types of genes

3. Modern technology could be used to clone pet dogs and cats. The cloned animals would resemble the original pets because
A. The genes of the new animals are different from those of the original pets
B. Half of the genetic information of the new animals is the same as that of the original pets
C. The new animals have mutations not found in the original pets
D. The new animals have the same genetic information as the original pets