

### III. Advances in Genetics

#### A. Selective Breeding

1. The process of selecting parents from one generation to serve as parents for the next
2. Inbreeding- crossing two individuals that have identical sets of alleles
3. Inbreeding may lead to genetic disorders
4. Hybridization- breeders cross two genetically different individuals

#### B. Cloning

1. Clone- an organism with the identical genetics from which it was produced
2. Plants can be cloned by cutting a stem- it will grow a new one
3. Animals- Dolly
4. Make organs for humans

#### C. Genetic Engineering

1. Genes from one organism are transferred to the DNA of another
2. Bacteria is a successful organism that has been genetically engineered
3. Page 135
4. Has been done in fruit and vegetable
5. Gene therapy- Put working copies of a gene into a genetic disorder

#### D. DNA Fingerprinting

1. Enzymes are used to cut the DNA from the crime scene into fragments

2. Can be compared to the suspect

#### E. Human Genome Project

1. The goal is to sequence the genes in a human genome

2. Genome- all the DNA in one cell of an organism

3. This may lead to advances in medicine