

## Biology Chapter 13 and 14: Homework

### Hmwrk 13-1

1. What is selective breeding and how has it played an important role in the history of the planet?
2. What is hybridization and what are the advantages?
3. What is inbreeding and what are the advantages and disadvantages?
4. How can genetic variation be increased in a population? Why is increase genetic variation a good thing (refer to past chapters for help)?
5. Describe how a scientist can produce new kinds of bacteria and new kinds of plants and what they can be used for.

### Hmwrk 14-1

1. What is a karyotype? If you were looking at a karyotype of a human, what would you see (be sure to include the definition of sex chromosomes and autosomes)?
2. What is a pedigree chart? Draw one for your family starting at your grandparents.
3. Describe how environmental factors can also affect a phenotype.
4. What is PKU? Be sure to describe the symptoms of the disease and what gene controls it.
5. What is sickle cell disease? What are the symptoms and why is it common in African Americans?

### Hmwrk 14-2

1. What are sex-linked genes and how do they differ than the genes we have been studying up to this point?
2. What is hemophilia? How is it determined? What are the symptoms and are there any cures or treatments?
3. What is X-chromosome inactivation and what is the importance?
4. What is nondisjunction and what can result?
5. What is Turner's Syndrome? Who is affected by Turner's Syndrome and how does it occur? Be sure to describe the symptoms of Turner's Syndrome.

Biology Chapter 13 and 14: Worksheet due Wed Jan 7, 2008

*Answer the following questions. You may refer to your textbook for help (Chapter 13). Answers that cannot be read will be counted as incorrect.*

1. What is genetic engineering?
2. Name two disadvantages of genetic engineering.
3. Name two advantages of genetic engineering.
4. What is transformation?
5. What is a plasmid and what are the advantages of using a plasmid in genetic engineering?
6. If an organism is transgenic, what does that mean?
7. What is a clone?
8. What is the most famous clone in the world?

## Biology Chapter 13 and 14: Study Guide

### Chapter 13

- Vocabulary

Selective breeding

Genetic engineering

Clone

Hybridization

Plasmid

Inbreeding

Transgenic

- Know what selective breeding is and what are its uses
- Know what hybridization is and its importance
- Know what inbreeding is and its advantages and disadvantages
- Know how genetic variation is increased and why increased variation is good
- Know how new kinds of bacteria and plants can be produced
- Know what genetic engineering is and its advantages and disadvantages
- Know what a plasmid is, where it is found, and its importance
- Know what a transgenic organism is
- Know what a clone is, what its purpose is and who the most famous clone is

### Chapter 14

- Vocabulary

Karyotype

Autosome

Sex-linked gene

Sex chromosome

Pedigree

Nondisjunction

- Know what you will see in a human karyotype
- Be able to draw and understand a pedigree
- Know how the environment may affect the phenotype
- Know the genes involved in blood type and be able to deduce the genes a person has if given their blood type
- Know the autosomal disorders in Figure 14-6 on page 345 and be able to the genetics behind the disorder and the major symptoms
- Know what possible benefits exists from the sickle cell disease allele
- Know what Lou Gehrig's disease or ALS is
- Know what sex-linked genes are and how they are expressed
- Know the sex-linked diseases (colorblindness, hemophilia, Duchenne muscular dystrophy), what their symptoms are and how they are determined
- Know what x-chromosome inactivation is and its importance
- Know what nondisjunction is and what chromosomal disorders can occur (Down Syndrome, Turner's Syndrome, and Klinefelter's Syndrome), what their symptoms are and how they are determined