**PowerPoint Study Notes Standard 4, Objective 2**

Slide 6: Alleles, dominant, recessive, incomplete dominance, co-dominance, sex-linked – Look up in textbooks; Mendelian Genetics Handout – Some words are on the handout, add the words that are not.

Slide 7: Recreating Mendel Lab

Slide 8: Elf Babies and Monster Babies

Slide 10: Selective breeding (also called artificial selection) is the process by which humans use animal breeding and plant breeding to selectively develop particular phenotypic traits (characteristics) by choosing which typically animal or plant males and females will sexually reproduce and have offspring together.

Slide 11: Only six or seven locations in the dog genome are necessary to explain about 80 percent of the differences in height and weight among dog breeds. The dog is now the physically most diverse land animal. In contrast to humans -- many physical traits in dogs are determined by very few genetic regions. Dogs are a fantastic model system since they complement mouse and human genetics.

Slide 12: Chickens have changed. Today’s broiler chickens are several times larger than broiler chickens of past decades. They’ve been bred to be bigger, especially in the breast, because today’s consumers want white breast meat.

Slide 13: The history of modern-day maize begins at the dawn of human agriculture, about 10,000 years ago. Ancient farmers in what is now Mexico took the first steps in domesticating maize when they simply chose which kernels (seeds) to plant. This process is known as selective breeding or artificial selection. Maize cobs became larger over time, with more rows of kernels, eventually taking on the form of modern maize.

While other grains such as wheat and rice have obvious wild relatives, there is no wild plant that looks like maize, with soft, starchy kernels arranged along a cob. Corn's wild ancestor is a grass called teosinte. At the DNA level, the two are surprisingly alike. They have the same number of chromosomes and a remarkably similar arrangement of genes. In fact, teosinte can cross-breed with modern maize varieties to form maize-teosinte hybrids that can go on to reproduce naturally.

Slide 14: Multicolored cauliflower is a result of breeding experiments. Carotene has been bred into the cauliflower, making it as much as 100 times richer as a source of Vitamin A. By crossing a mutant with the traditional white cauliflower, scientists have achieved greater visual and health benefits. They are not genetically engineered, but are a mixture of heirloom varieties, naturally-occurring accidents, and the hybrids grown from them.