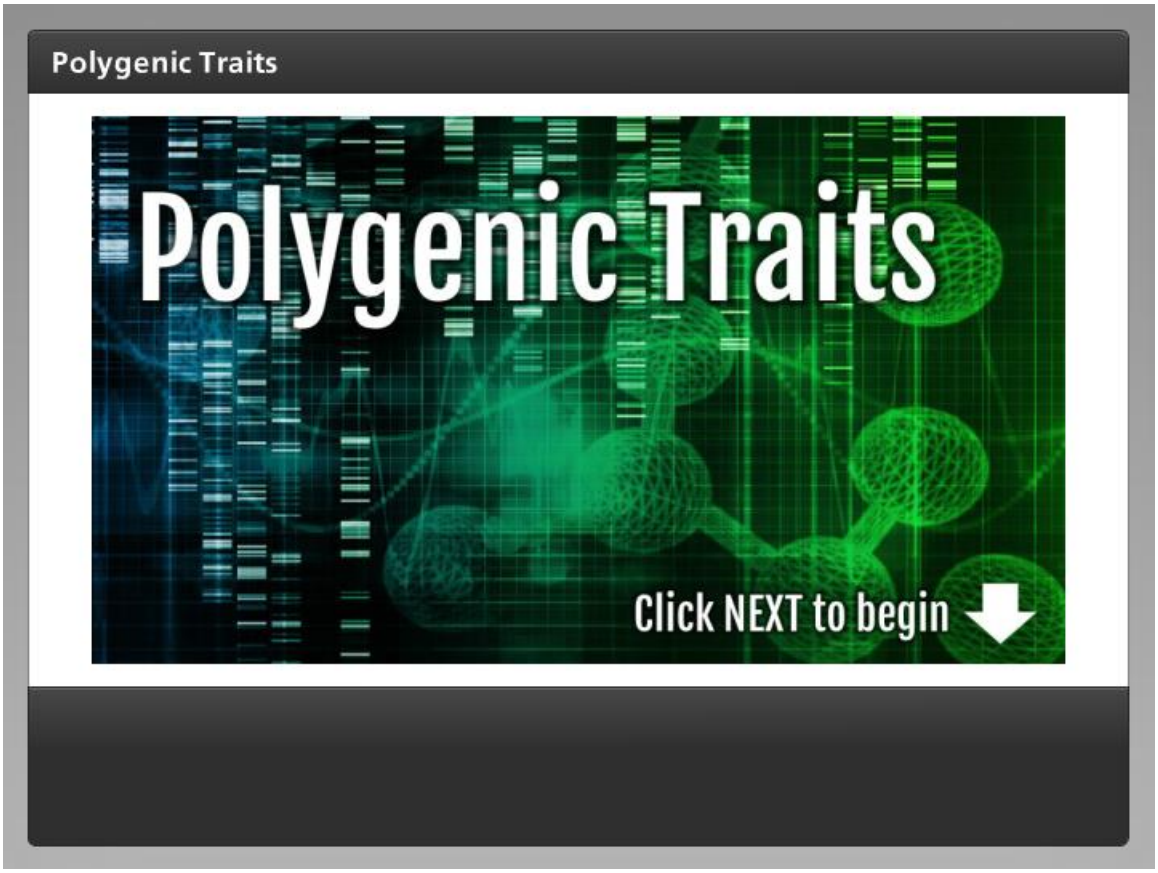
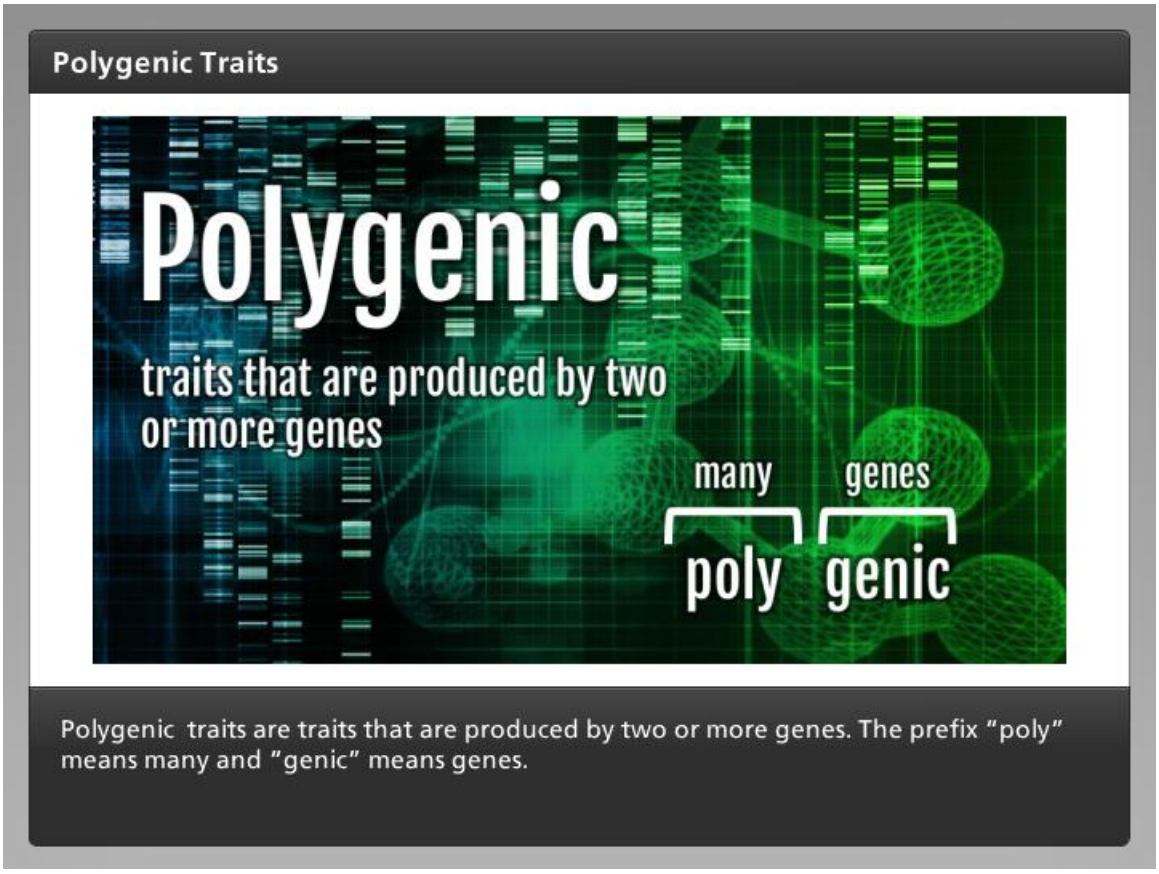
Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes



Polygenic Traits

Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes

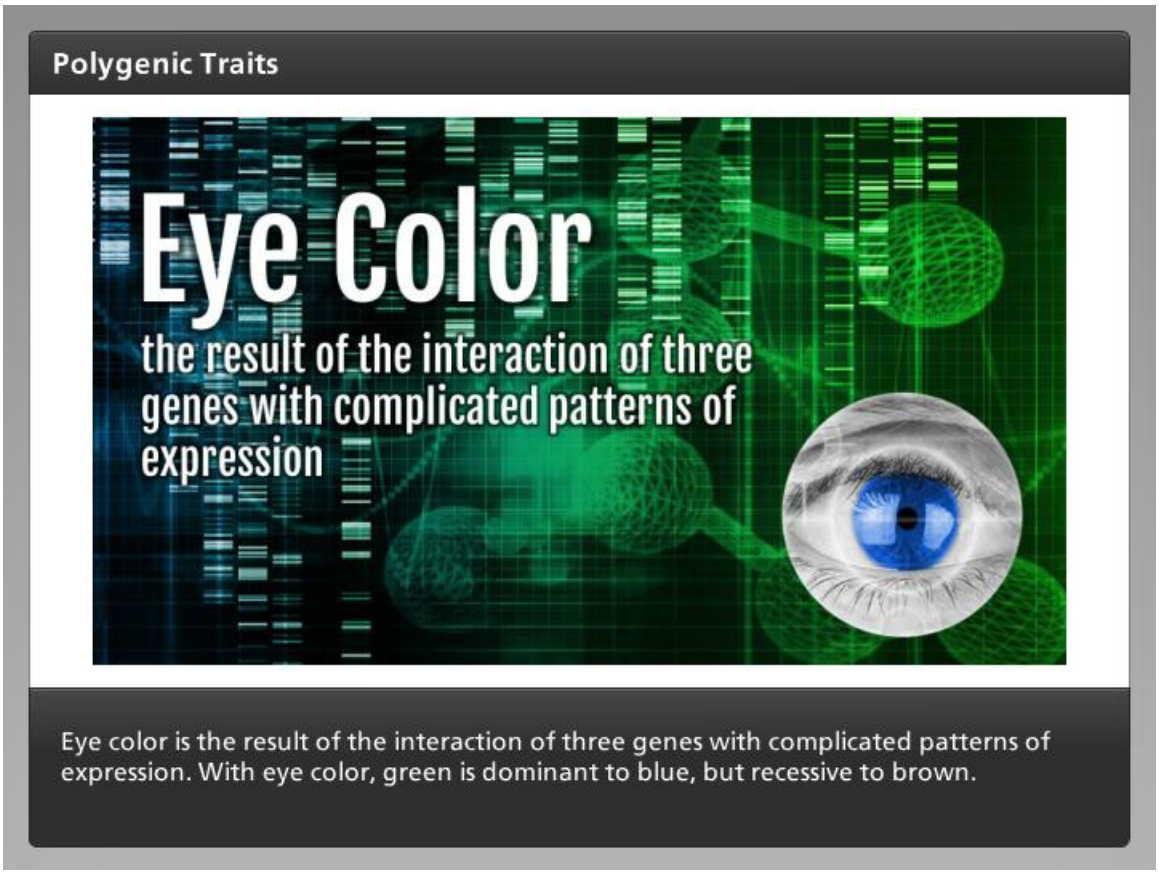


Polygenic traits are traits that are produced by two or more genes. The prefix “poly” means many and “genic” means genes.

Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes

Human skin color is the result of four genes that interact to produce a large range of colors.

Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes



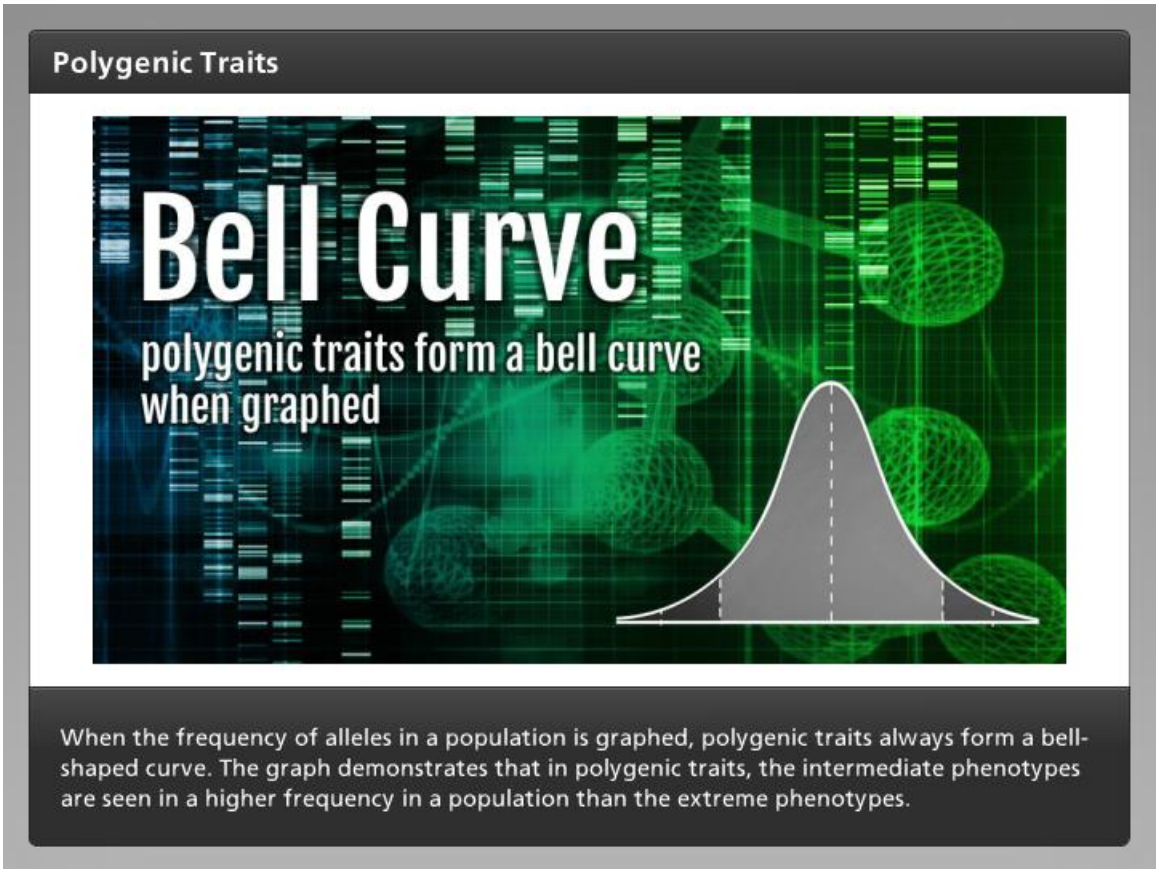
Eye color is the result of the interaction of three genes with complicated patterns of expression. With eye color, green is dominant to blue, but recessive to brown.

Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes

Height is a polygenic trait controlled by three genes. These genes determine how tall or short an offspring will become.

In animals, fur color is determined by multiple genes. In mice, two genes determine the general fur color, one gene effects shading, and one gene determines if the mouse is spotted. In some cases, a fifth gene can overshadow all of the other genes. This is called epistasis and can result in the mouse having albinism.

Module 5: Mendelian Genetics and Genetic Disorders
Topic 2 Content: Polygenic Traits Notes



When the frequency of alleles in a population is graphed, polygenic traits always form a bell-shaped curve. The graph demonstrates that in polygenic traits, the intermediate phenotypes are seen in a higher frequency in a population than the extreme phenotypes.