Designer genes.
Geneticists fall into many categories. Some try to understand how genes work (functional genomics) or where genes are (structural genomics), or they follow the flow of genes between and within populations to understand forces of evolution (population genetics). Some geneticists are breeders (quantitative genetics) who produce superior plants and animals through selective breeding. Molecular geneticists (a new group) create designer genes for production of transgenic plants and animals. Their goal is to improve the efficiency of production and the quality of food and fiber, or to further domesticate animals for improved well-being. The designer genes they create express traits that may not normally exist within the species. Geneticists work with all species (plants and animals) important for commercial agricultural production. Plants they work with include, for example, maize, wheat, soybeans, tomatoes, grapes, and trees. Animals include cattle, sheep, pigs, chickens, fish, and shellfish.

Private corporations hire geneticists to develop such things as new seeds and new varieties of fruit trees, vegetables, grains, and trees. They also employ geneticists to improve breeds and strains of livestock, poultry, and fish. State universities, and state and federal agencies hire geneticists in research, teaching, extension, and regulatory positions. Genetics training is increasingly desirable for those continuing into veterinary and human health professions so that they can understand, diagnose, and treat gene-based diseases.

To be a geneticist, earn a bachelor’s degree in animal science, biochemistry, agronomy, plant science, horticulture, poultry science, dairy science, forestry, or fisheries and wildlife. Genetics draws heavily from mathematics, biology, statistics, biochemistry, microbiology, and chemistry, so those courses are important. Graduate degrees can lead you to more sophisticated research and development positions.

In high school take as many courses in math, science, and English as possible. Also, take courses in computer science and communications.