



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute  
1996 Volume V: Genetics in the 21st Century: Destiny, Chance or Choice

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## **Basic Genetics for First and Second Grade**

Guide for Curriculum Unit 96.05.02  
by Kathleen Ayr

This curriculum is designed to help young children acquire the underlying skills and scientific attitudes needed for the study of genetics. One might wonder how the complex world of genetics can be brought to a first or second grade level. Familiarity with the basics of genetics provides many advantages for young students. Tomorrow's student will use computers to scan cells and quickly label the 46 chromosomes according to banding patterns. The growing power of genetic research demands an educated population. Young children need to accumulate basic genetic knowledge so that they can better grasp concepts in later grades. Ideally, some students will consider careers in this growing field.

This genetics unit will start with basic anatomy and lead to a sameness versus differences continuum. It blends family inheritance and reproduction of cells. The name of Mendel is not part of first grade science but a poem about the laws of inheritance can be easily introduced. Rules of probability are studied with two-colored chips and the rules of inheritance can be studied through a hands-on comparison of wrinkled and smooth pea seeds. Family pictures, seed comparisons and observations of baby animal pictures will be used to talk about features or traits that we get from our parents.

The concept of magnification helps these young students understand how genetics developed. A bit of genetic history develops a definition of science and leads to experiments with a major tool of genetics, the microscope. The workings of a cell involve hands-on experiments to reinforce new vocabulary words and observational skills. Discussions about genetic disease introduce the fact that some of our classmates have genetic traits that are challenging but not impossible to overcome. Culminating activities include raising a batch of butterflies and observing the life cycle of animals on various field trips. This study of genetics extends basic science to a more sophisticated level and prepares students for biology.

(Recommended for Science/Biology, grades 1-2)

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