BASICS OF GENETICS

Mondays, January 27-April 27 (no class Feb 17, Apr 6; 12 weeks)
11:00am-12:15pm
Ages 8-10

Students are introduced to DNA, inherited traits and cellular functions through hands-on activities, including DNA extractions and other lab techniques, modeling structures and processes, and simple data analyses. All lab costs are included in registration fee. Course enrollment is limited to 12 students.

Instructor: Tina Oresteen, BSc
Location: STEM Lab (suite 21)
Course fee: $220 OR $20/lab
10% off early registration discount through December 15
10% off sibling discount available beginning December 16

LAB SCHEDULE:

Introduction to DNA – Monday, January 27
We start the semester with an introduction the nucleotide building blocks of DNA, learn the basic structure of our genetic code, and investigate how DNA can be used to solve crimes.

DNA Extraction – Monday, February 3
Students review where DNA is located on our body, how to get it out of cells, and extract it from a polyploid organism.

DNA Replication – Monday, February 10
This week, we investigate how cells make more DNA by creating a larger-than-life diagram to illustrate the process.

Dividing Cells – Monday, February 24
Students discover how cells create new cells by building models and using a microscope to view cells in the process of dividing.

Phenotypes and Genotypes – Monday, March 2
In lab today, students learn the difference between genotype and phenotype as they design a new alien.

Genetics and Environment – Monday, March 9
We focus on differences between inherited traits, learned behaviors and other environmental influences on phenotype, and how to properly collect and interpret scientific data.

Inheritance – Monday, March 16
This week, students use a Punnett square card game to investigate how alleles are inherited and to study the behavior of dominant and recessive genes.

Pedigrees – Monday, March 23
Students test what they have learned about phenotypic traits and inheritance as they explore how traits are passed on or skip future generations, and why.

Canine Traits – Monday, March 30
We investigate dog breed characteristics as another way to model pedigrees, and study inheritance of traits.

Genetic Diversity – Monday, April 13
We collect and interpret data about genetic diversity of populations, and discover what the founder effect is and why it matters in the success of populations.

Genetically Modified Organisms – Monday, April 20
Students investigate the history of genetically modified organisms, how it is accomplished and what future modifications might look like.

Conservation Genetics – Monday, April 27
Students learn the importance of genetic diversity in species, and create a research plan to increase the genetic variation within an endangered species.

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