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Flathead Pursue Diversity: Beyond the Phases of Meiosis

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Labs teaching meiosis often depend on students viewing cells suspended in their various static phases. As a result, students tend to remember the names of the phases, but not always the importance of what the phases accomplish. In addition, it is difficult for students to connect the molecular process of meiosis to the diversity of physical traits we see in populations. To engage students in the dynamic process of meiosis we developed a lab activity where students become members of a fictional Flathead population. As members of the population students go through the process of meiosis to produce gametes and reproduce offspring bearing various inherited traits. The model "Flathead" organism is a great visual tool to demonstrate the relationship of genotype to phenotype, and also to demonstrate how independent assortment and fertilization result in diversity within populations. The content complexity of this lab activity can be adjusted for use in both non-majors and majors biology and genetics labs. Genes, alleles and physical traits can be easily altered to incorporate different modes of inheritance and gene expression.

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