

Use these inquiry-based labs and online activities to deepen your understanding of human genetics and complex patterns of inheritance.

INVESTIGATION

Pedigree Analysis

In most human genetics studies, scientists do not know the genotypes of people involved, so possible genotypes must be inferred from pedigrees. In this lab, you will interpret a pedigree to determine genotypes and predict the genotypes of future offspring.

MATERIALS
Pedigree Datasheet

SKILLS *Inferring, Calculating Probabilities*

PROBLEM What are the genotypes of the people in the pedigree?

PROCEDURE

1. Read the following background information and pedigree.

People fall into three categories for the ability to taste a bitter chemical called 6-n-propylthiouracil (PROP). People who can taste PROP find it very unpleasant. Scientists hypothesize that these people, called supertasters, are homozygous for the trait ($T_1 T_1$). People who are heterozygous ($T_1 T_2$), called medium tasters, taste PROP as being somewhat bitter. Nontasters ($T_2 T_2$) do not taste the bitterness at all.

2. On your datasheet, fill in the possible genotypes for each person, including the phenotypes for those people who are medium tasters.

ANALYZE AND CONCLUDE

1. Calculate What is the probability that Jack will be a supertaster? What is the probability that Jill will be a supertaster? Explain your answers.
2. Analyze Is the gene for being a supertaster autosomal or sex-linked? Explain your answer based on the pedigree chart.

