

PERSONAL PEDIGREE ASSIGNMENT

DUE DATE: _____

A. DIAGRAM OF PHENOTYPES

1. Use standard 8.5 x 11 sheet of plain unlined paper. Place your name, period, and date at top of page. Use the title shown below in #3. Diagram your family (or selected family*), using proper pedigree symbols (indicating where you are).
2. Survey the family for as many traits as possible (see list below). Note any traits which appear differently (different phenotypes) in at least two people in the family. If no such trait is found...
 - a) ask your teacher for additional traits to check for, and/or...
 - b) select another family (friend or neighbor) until differences are found.
3. Select one trait to show on the pedigree, with highest preference for a trait which shows the inheritance pattern clearly revealing the dominant/recessive status. Now, show the phenotype of each person checked. Color or shading with a color-key identifying the least common phenotype, is a good way to do this. Place a "?" for each person not tested for the trait. Be sure to name the trait in the title: "PEDIGREE OF THE ___ (last name)___ FAMILY, FOR THE TRAIT OF ___".

B. PATTERN RECOGNITION

4. If both parents have the same phenotype, and they have at least one child with the different phenotype, then the parents' phenotype must be dominant and that child's phenotype must be recessive. If you see this inheritance pattern in your pedigree, circle that pattern-portion of your pedigree, and point out the pattern, with a label, saying "this shows that is dominant and is recessive".
5. If the dominant/recessive status is not revealed by the tell-tale pattern described above (#4), say this clearly on your paper, and...
 - a) indicate the dominant/recessive status based on another source of information, and give that source on your paper (e.g.our text, McKusick, OMIM, or Scheinfeld, etc.), or, ...
 - b) if trait is not in one of these references, assume tentatively that the least common phenotype is recessive, and say this on your paper as the reason for your assumption.

C. GENOTYPE DESIGNATION

6. Assign letters appropriately for each allele (and so define each letter on your paper), then show the genotypes clearly for all individuals in the pedigree wherever possible, and as completely as possible, even for those not checked. Assume the trait is not sex-linked unless you have good reason to know, or evidence to show, that it is. Use letter for which the capital and lower case forms are clearly different. Avoid C, J, K, O, P, S, U, V, W, X, Y, Z.
7. Indicate the probable phenotypes, wherever possible (based on genetic analysis) for any individuals not checked directly, and point out those individuals clearly as "non-checked, but would probably be...".

HUMAN TRAITS KNOWN TO BE INFLUENCED BY HEREDITY

Eye color: pigmented (brown/hazel/green) vs non-pigmented (clear blue)

Ear lobes: attached vs unattached

PTC tasting: taster vs non-taster

Mid-digital hair: present vs absent

Tongue-curling: curler vs non-curler

Hair whorl: clockwise vs counter-clockwise

White forelock: present vs absent

Mid-diget hair: present vs absent

Any known distinctive family trait or tendency (e.g. twins, webbed toes, etc.) or disease tendency (e.g. diabetes, heart disease, hypoglycemia, etc.) If "twins", distinguish "monozygotic" from "dizygotic"; see McKusick's OMIM (Online Mendelian Inheritance in Man): <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM>

Blood type: A/B/AB/O

Color blindness

Hair shape: straight vs curly

Handedness: right vs left

Cleft chin: present vs absent

Dimples: present vs absent

Thumb or pinky: straight or curved

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* If your family is not entirely biologically related to you (adopted, remarriage, etc.), or if it is very small, you may select another suitable family (neighbor, or friend's family). You may use the family of another biology student ONLY if you trace a different trait in that family. The family should be as large as possible, with as many relatives as possible. However, you could get by with only 2 parents and one child!