**Family Survey / Pedigree Project**

Throughout this unit, we have covered how traits are passed from one generation to the next. For this upcoming project, you will now attempt to survey your immediate and extended family for various genetic traits. These people include your grandparents, aunts, uncles, cousins and other family members.

You will use the results of the survey to make a "Family Pedigree" poster. In order to do that you will need to find a trait that NOT EVERYONE in your extended family has in common. For example, suppose you survey your family members for tongue rolling and find out that 2 or 3 family members are non-tongue rollers while the rest are "tongue rollers." Non-tongue rolling would be a good trait to use for the pedigree. On the other hand, if everyone in your extended family can roll their tongue, then that would not be a good trait to use.

So how do you find a trait that only a few family members have? The only way is to survey your family for several traits. On the second sheet of this packet, you will find the instructions for making your poster as well as a list of possible traits you might choose. Also attached is a data table for you to fill out as your survey. Pick at least 8-10 traits for your survey. You will narrow this down to one trait later. Your family may also have some special inheritance patterns (twins, a particular disease, webbed toes, colorblindness, etc). Ask your parents if you are not sure.

**IMPORTANT**: In order to do this properly you will need to survey only biological relatives. Ask your parents for help if you are not sure. Also, some of you may not be able to survey as many family members as you would like. Don't worry, you can still do this. You can survey many of these traits over the phone, or by using pictures, or by asking your parents. If necessary, you may have to limit the survey to your immediate family.

**REMEMBER**:

• Pick at least 8-10 traits for your survey, write these on your table as your survey

• Survey as many family members as possible (biological relatives)

• Have fun! This is a great opportunity to learn about your family and possible future children

**Family Pedigree Project**

**Introduction**:A pedigree is a family tree that shows the relationships among family members and traces a specific genetic trait within the family. It is a "shorthand" way to represent the members of a family.By following a few guidelines, you can make a pedigree chart for your family. You might even beable to find a pattern in the way a family characteristic is inherited.

**Directions**:

Using a poster board, create your family pedigree that follows one particular trait for **at least four generations**

* If you cannot get in contact with enough generations of family then please create a predicted family pedigree for one trait and explain why they have these predicted traits.

(include in your pedigree a generation that shows the traits for your potential offspring). Include the following:

**• a legend (see example below)**

**• First names for all members**

**• A title detailing what trait you will explore**

**• Indicate people with the trait, carriers and people without the trait**

Note: If it is a dominant trait, there are no carriers, only people who have it or not.

**• Indicate whether the trait is dominant or recessive**

**• Create a Punnett square of 2 people with known genotypes. What are the possible**

**offspring's genotypes and phenotypes?**

**• Indicate the genotype of each person (If there are several possible genotypes, put a question mark for the allele)**

**Possible traits: Sample Pedigree Sample Pedigree Key**

= Male = Female

or = person with the trait

or = carrier

= marriage

= offspring or children

= twins

 or  = deceased

|  |  |  |
| --- | --- | --- |
| **Trait**  Eyelash length  Widow’s peak  Dimples  Freckles  Ear lobes  Hair on middle digit  Roman nose  Toe length  Hand use  Tongue roller  Height  Curved Thumb  Cleft Chin | **Dominant**  Long (1cm or more)  Widow’s peak  Dimples  Freckles  Free ear lobes  Hair on middle digit  Roman nose (bent)  2nd toe longer  Right-handed  Tongue roller  Short  Females: less than 5’7  Males: less than 5’10  Hitchhiker thumb  No cleft Chin | **Recessive**  Short (less than 1cm)  Straight hairline  No dimples  No freckles  Attached  No hair on middle digit  Straight nose  Big toe longer  Left-handed  Non-tongue roller  Tall  5’7 or above  5’10 or above  Straight Thumb  Cleft Chin |

**Analysis:**

Finally, you will need to type a 1 page analysis (Times New Roman font, 12 pt. font, one inch margins, double spaced) of the genetic traits of the relatives on the chart. What patterns related to genetics and inheritance do you see in your chart? Finally what hypotheses and/or conclusions can you draw from examining your genealogical data?

**Family Data Sheet**

**Trait = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Which trait did you research)**

|  |  |  |
| --- | --- | --- |
| Phenotype | Sex (M/F) | Relationship to You |
| Example: Has trait | Example: F | Example Maternal Grandmother  Maternal = mother  Paternal = father |
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