**Genetics of a Superhero**

Today you will be partnering up and flipping coins to represent the possible outcomes for what a Superhero could look like, given certain traits of parents. You will assume that both parents are heterozygous for all traits (one dominant and one recessive allele, represented by one capital and one lower case letter, for example Tt).

**Procedures:**

1. Obtain 2 coins.
2. Determine which coin will represent male and which will represent female.
3. Flip the coins for each trait.
4. If the coin lands “heads up” this represents a dominant allele (Capital letter) (For example dark hair, and is represented by a capital letter, for example T).

If the coin lands “tails up” this represents a recessive allele (Lower case letter) (For example light hair, and is represented by a lower case letter, for example t).

**Note:** Because dominant “overrides” recessive alleles (according to Mendel’s Law of Dominance) and the dominant feature will be expressed if you get for example either TT or Tt. This means for example if you got TT or Tt you would get dark hair, the only way you could get light hair is if you got tt. So there would be a 2/3 chance of getting dark hair and 1/3 chance of getting light hair.

1. After you flip the coins, record what the female coin turned up with as well as the male coin.
2. Look at what the female and male got, then record what the genotype and the phenotype would be.

**Note: Genotype is represented by the letters and phenotype is represented by what the trait would look like.**

***Disclaimer:*** *External factors (ie. Vehicle, cape, boots etc. would not be caused by genetic factors). Imagination required!*

**Draw and name your Superhero below:**

**Boy or girl** – Only dad flips coin! (Heads=boy/ Tails = girl). **Result**: It’s a \_\_\_\_\_\_\_\_\_!

[D = dominant (Example: TT or Tt) and R = recessive (Example: tt)]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Trait** | **Female** | **Male** | **Genotype** | **Phenotype** |
| “Muscles”D=super strength R=stretch ability | M/m | M/m |  |  |
| EyesightD=laser eyes R=x-ray vision | E/e | E/e |  |  |
| Special abilityD=walk through objects R=flight | S/s | S/s |  |  |
| Eye coverD=mask R=no mask | E/e | E/e |  |  |
| CostumeD=Cape R=No cape | C/c | C/c |  |  |
| DécorD=Emblem R=No emblem | D/d | D/d |  |  |
| HandsD=Web shooters R=Freeze Ray  | H/h | H/h |  |  |
| MindD=Mind reader R=Mind control | M/m | M/m |  |  |
| Hair colorD=Dark hair R=Light hair | H/h | H/h |  |  |
| Hair textureD=Straight hair R=Curly hair | T/t | T/t |  |  |
| HearingD=Super R=Normal  | H/h | H/h |  |  |
| FootwearD=Boots R=no boots | F/f | F/f |  |  |
| WeaponsD=Lasso (whip) R=Grappling hook | W/w | W/w |  |  |
| VehicleD=Car R=Motorcycle | V/v | V/v |  |  |
| NoseD=Big nose R=Small nose | N/n | N/n |  |  |
| SpeciesD=human R=Non-human | S/s | S/s |  |  |
| BehaviorD=Good R=Evil | B/b | B/b |  |  |
| CompanionD=Sidekick R=No sidekick | C/c | C/c |  |  |
| Foot sizeD=Small feet R=Large feet | F/f | F/f |  |  |