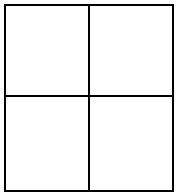
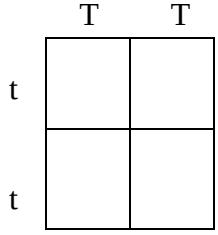
Genetics Part IV-Punnett Squares

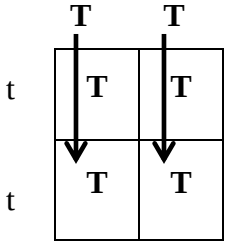
- Somatic cells have 2 copies of each chromosome
    - Human somatic cells have 46 chromosomes
- Gametes only have 1 copy of each chromosome
    - Human gametes have 23 chromosomes
- During sexual reproduction, two gametes will join together and the new organism will have two copies of each chromosome, one from mom and one from dad
- Because gametes only have 1 chromosome, the parents can only pass one of their chromosomes to their offspring
    - This means they can only pass 1 allele, or form of the gene to their offspring
- Scientists use Punnett squares to determine the probability of certain gene combinations occurring in offspring
- Punnett squares look like this:



- To set up a Punnett Square for this cross: **TT x tt**
    - **Step 1**-Write the parent's alleles on the top and side of the box



    - **Step 2**-Pull down the alleles from the top parent into each box:



    - **Step 3**-Pull over the alleles from the side parent into each box: