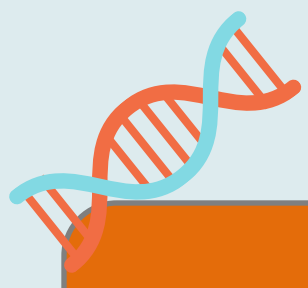


New Genetic Changes ["De novo variants"]



DNA Alphabet

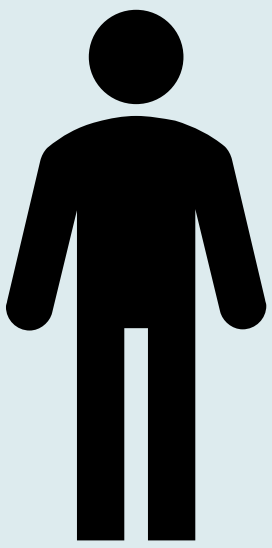
**AT
CG**



Gene = Recipe

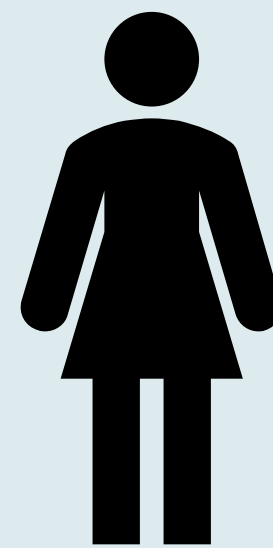


**Chromosome =
Cookbook**



**Genome =
Cookbook
Collection**

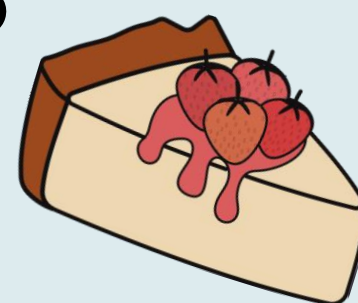
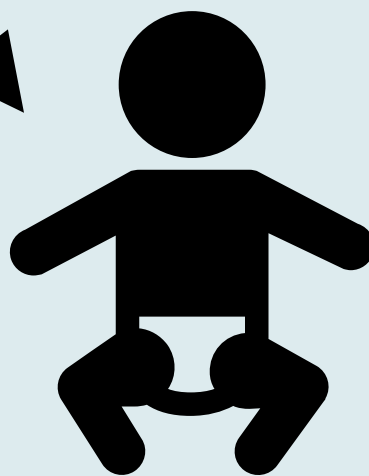
The genome is a full set
of 47 cookbooks:
23 from each parent
PLUS the extra
mitochondrial DNA



Chocolate

Chocolate

Cheese



New Changes/De novo variants

Sometimes a genetic change happens as a brand new change in a child and is not inherited from the parents. These new changes are called "de novo." In this example, both mom and dad have a recipe (gene) for chocolate cake, however, their child has a change in their recipe (gene) that made cheesecake instead. This child may be the first in the family to ever have this trait.