

Introduction to Genetics

My Genetic Profile

- * Try the following:
 - * Can you roll your tongue?

My Genetic Profile

- * Try the following:
 - * Can you roll your tongue?
 - * 70% of the population can roll tongue, 30% cannot
 - * In this class we would expect to see 12 tongue rollers

My Genetic Profile

* Are you right handed or left handed?

My Genetic Profile

- * Are you right handed or left handed?
- * 93% of the population is right handed, 7% is left handed
- * In this class we would expect to see one left handed student.

My Genetic Profile

- * When you clasp your hands, is your right hand on top, your left, or do you have no preference?

My Genetic Profile

- * When you clasp your hands, is your right hand on top, your left, or do you have no preference?
- * 55% left thumb on top, 44% right thumb on top, 1 % no preference

Terminology

- * **Genetics:** Study of genes
- * **Inheritance:** How traits are passed on from generation to generation.

Terminology

- * **Somatic Cells: Body cells.**
 - * **Examples: Skin, bone, hair.**
- * **Gametes: Sex cells.**
 - * **Examples: Sperm and egg.**

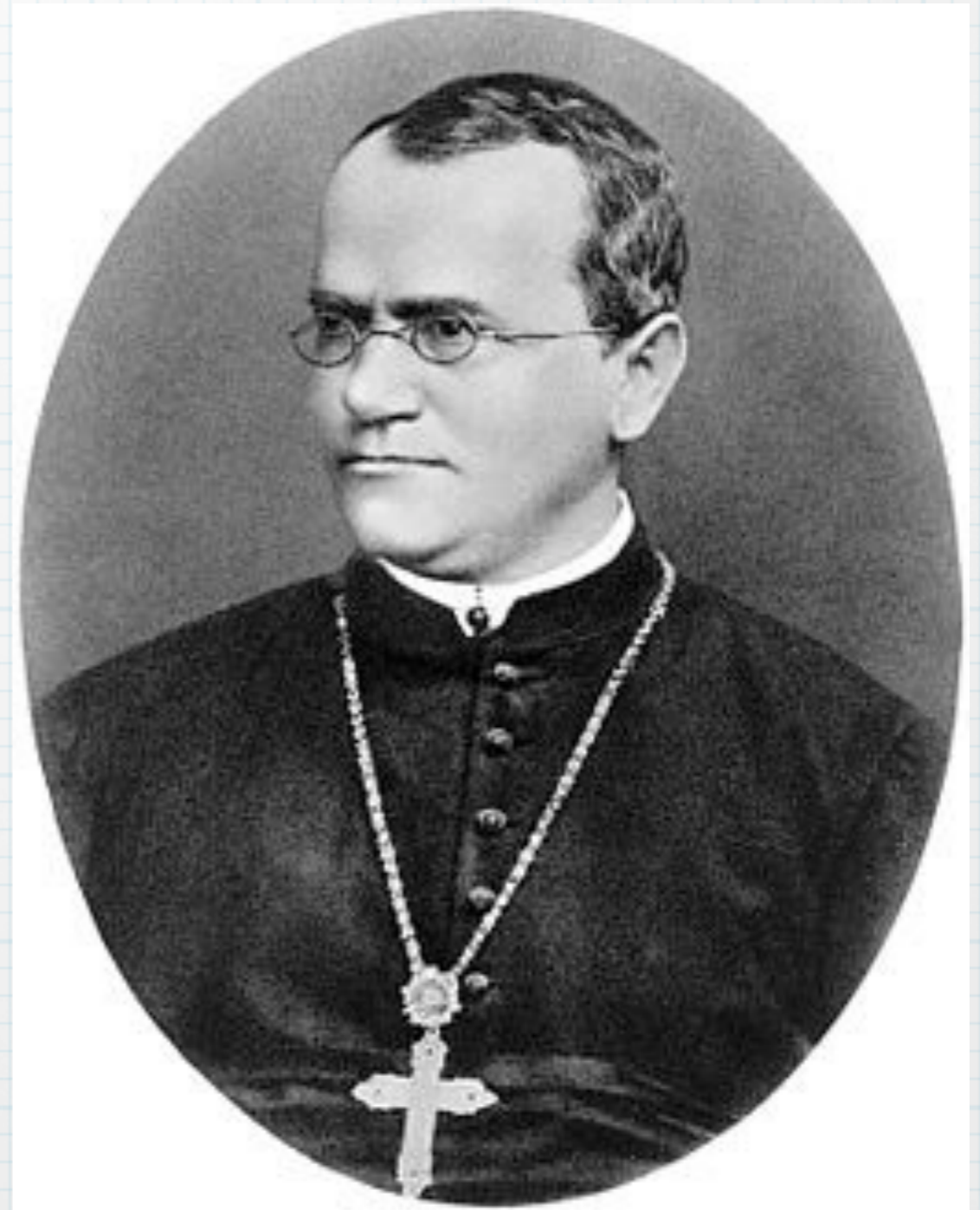
- * Somatic cells are diploid, which means they carry two sets of genetic material.
- * Gametes are haploid, which means they carry one set of genetic material.

Terminology

- * Homologous are chromosomes that are similar in size and shape.

The History of Genetics

- * Gregor Mendel:
1822-1884
- * The Father of
Modern Genetics



The History of Genetics

- * Monk who studied pea plants
- * Developed the law of inheritance
- * Work was not recognized until the 20th century

The History of Genetics

- * Cultivated thousands of pea plants
- * Found that plants offspring retained traits of their parents

The History of Genetics

- * Stated that physical traits are inherited as 'particles'
- * Particles actually chromosomes and DNA

The History of Genetics

- * Why Peas?
- * Can be grown in a small area
- * Self pollinate
- * Produce lots of offspring



The History of Genetics

- * Mendel looked at:
 - * Colour
 - * Shape
 - * Height
 - * ... and many other traits

The History of Genetics

- * Through his research, Mendel developed his Particulate Hypothesis of Inheritance:
- * Parents pass on to their offspring separate and distinct factors (today called genes) that are responsible for inherited traits.

Your Genetic Profile

* Detached Earlobes?

* Roll Tongue?

* Dimples?

* Right-Handed?

* Freckles?

* Curly Hair?

* Cleft Chin?

* Detached Earlobes? 70%

* Roll Tongue? 70%

* Dimples? 20%

* Right-Handed? 93%

* Freckles? 5%

* Curly Hair? 11%

* Cleft Chin? 11%