

Gregor Mendel's Peas

- gregor mendel (austrian monk)
- fertilization: process where male and female reproductive cells join
- self pollination: sperm cells in one flower fertilize egg cells in same flower
- true breeding: if self-pollinate -> produce identical offspring
- mendel wanted to cross pollinate

Genes & Dominance

- trait: specific characteristic
- original (parental), first generation (F1), second generation (F2)
- hybrids: offspring of crosses
- genes: chemical factors that determine traits
- alleles: different forms of genes
- principle of dom: some alleles are dom & some are recessive

Segregation

- recessive alleles seemed to disappear in F1 and reappear in F2
- this happened b/c of segregation (separation of alleles)
- alleles segregate during the formation of gametes (sex cells)
- two gametes; each gamete carries a single copy of each gene

Genetics & Probability

- principles of probability can be used to predict the outcomes of genetic crosses

Punnet Squares

- homozygous (TT); heterozygous (Tt)
- phenotype: physical characteristics;
- genotype: genetic makeup

Probability & Segregation

- mendel's model: 3/4 (dominant), 1/4 (recessive)

Independent Assortment

- mendel performed the two-factor cross
- independent assortment: alleles for one trait segregated independently from the alleles for another trait
- principle of ind assortment: genes for different traits can segregate independently during formation of gametes

Beyond Dominant & Recessive Alleles

- some alleles are neither dominant bi recessive & many traits r controlled by multiple alleles or multiple genes
- incomplete dominance: cross btwn red flower & white fl = pink fl
- codominance: chicken feathers r black & white
- multiple alleles: many genes have multiple alleles (rabbit coat, blood type)
- polygenic traits: traits controlled by two or more genes (skin, eye colors)

Chromosome Number

- homologous: a pair of chromosomes (one inherited from mother & one from father)
- haploid: two pairs (4)
- diploid: four pairs (8)

Phases of Meiosis

- meiosis is a process of reduction division where the number of chromosomes per cell is cut in half through the separation of homologous chromosomes in a diploid cell
- meiosis 1:
 - inter 1
 - pro 1 (crossing over)
 - meta 1
 - ana 1
 - telo 1 & cytokinesis
- meiosis 2:
 - pro 2
 - meta 2
 - ana 2
 - telo 2 & cytokinesis

Meiosis & Mitosis

- mitosis -> produces two genetically identical diploid cells
- meiosis -> four genetically different haploid cells



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Published 21st May, 2023.

Last updated 21st May, 2023.

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