STD 10-BIOLOGY-FIRST BELL-CLASS-38 Dated 19/12/2020

Chapter – 6

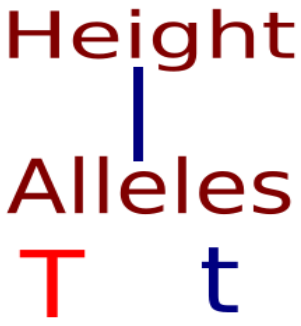
UNRAVELLING GENETIC MYSTERIES

- In his first experiment, Mendel observed the inheritance of a single pair of contrasting traits.
- Each character is controlled by a pair of factors.
- **Genes** are the factors that control character present in the chromosomes.

- **Genes** are considered as a unit of heredity that is responsible to carry traits and characteristics from parents to children.

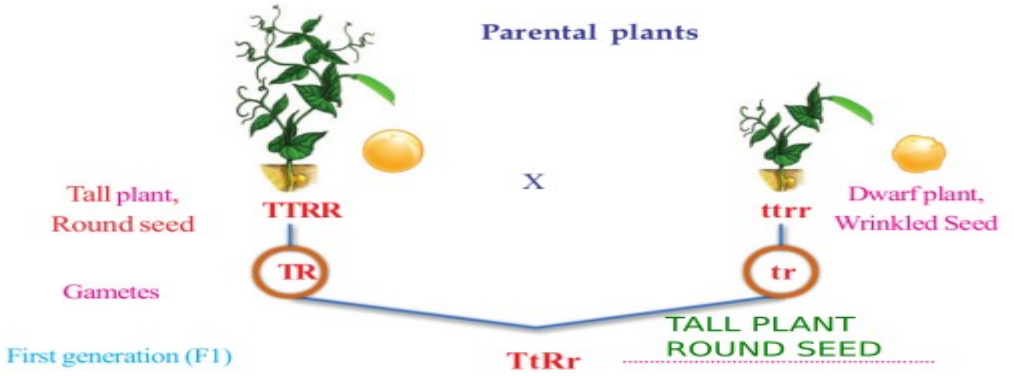
- **Alleles**

- A gene that controls a character has different forms. They are called alleles.
- Generally, a gene has two alleles
- For example, T and t are the different alleles of the gene that controls the character, height.
- The **allele T** determines the trait **tallness** and the **allele t** determines thetrait **dwarfness**.
- The allele that determines the dominant trait in the first generation is generally indicated by a capital letter.
- The allele that determines the recessive trait is indicated by a small letter.



- He observed the inheritance of two pairs of contrasting traits of the same plant in the next stage.
- Hybridization experiment conducted by Mendel on two characters namely,

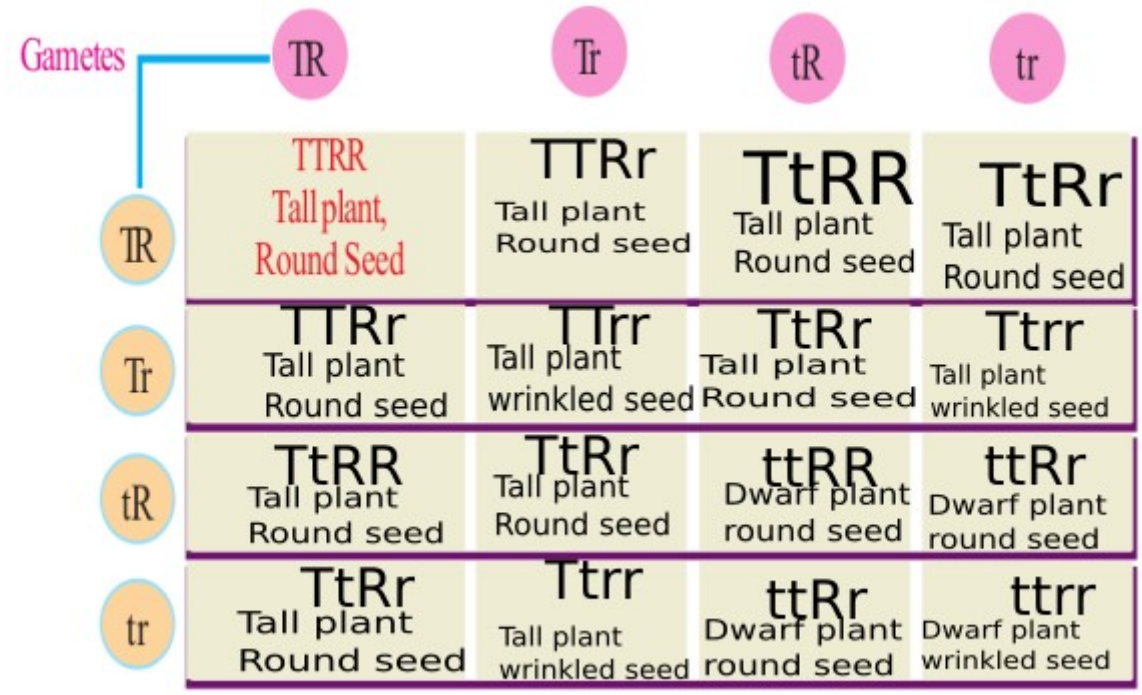
- Height of the plant
- Shape of the seed



Gametes of self pollination of first generation

Self pollination in first generation -Hybridization of two characters

TtRr X TtRr



- Characters obtained in the second generation are in the ratio 9:3:3:1
- Tall plant with Rounded seed -9
- Tall plant with Wrinkled seed -3
- Dwarf plant with Rounded seed -3
- Dwarf plant with Wrinkled seed -1

Indicators :

- Characters considered in this experiment and their contrasting traits

- Height -----Tall / Dwarf
- Shape of the seed ------Rounded / wrinkled

- Factors present in the gametes produced by first generation.

- TR
- Tr
- tR
- tr

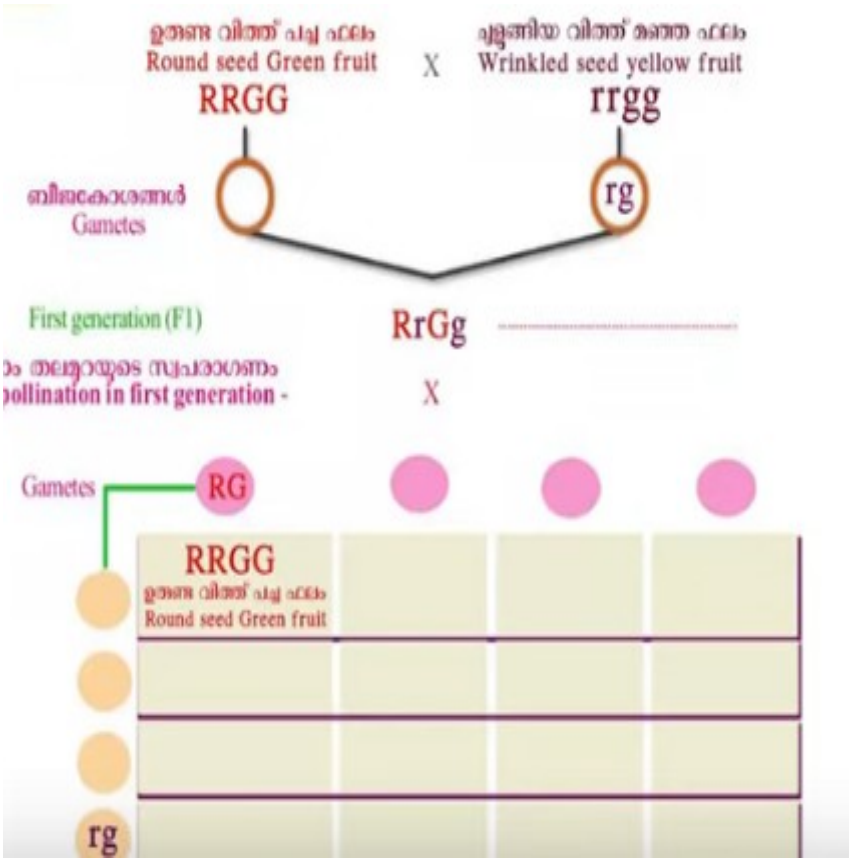
- Characters different from parents that appeared in the second generation.

- Tall pant with Wrinkled seed
- Dwarf plant with Round seed

- Mendel explained that the appearance of variations in offspring (characters not present in previous generation) is due to the **independent assortment** of each character.

EVALUATION

1) Complete the worksheet and write it in your science diary



ANSWER :

	RG	Rg	rG	rg
RG	RRGG Round seed Green fruit	RRGg Round seed Green fruit	RrGG Round seed Green fruit	RrGg Round seed Green fruit
Rg	RRGg Round seed Green fruit	RRgg Round seed yellow fruit	RrGg Round seed Green fruit	Rrgg Round seed yellow fruit
rG	RrGG Round seed Green fruit	RrGg Round seed Green fruit	rrGG Wrinkled seed Green fruit	rrGg Wrinkled seed Green fruit
rg	RrGg Round seed Green fruit	Rrgg Round seed yellow fruit	rrGg Wrinkled seed Green fruit	rrgg Wrinkled seed yellow fruit

CHARECTERS OBTAINED :

- Round seed Green fruit : 9
- Round seed yellow fruit :3
- Wrinkled seed Green fruit :3
- Wrinkled seed Yellow fruit :1

NEW COMBINATION OF CHARTERERS OBTAINED IN THE SECOND GENERATION:

- Round seed yellow fruit
- Wrinkled seed Green fruit