APRIL

14 Friday

DOMINANCE RELATIONSHIP

Mendel found that in heterozygous state only one of the two alleles of a gene was able to express itself ie. produce the characters. This allele is referred to as the dominant allele. The recessive allele on the other hand is unable to express itself in the heterozygous state. Thus the phenomenon of dominance describe the relationship between two alleles of the same gene.

All situation of Dominance have been grouped into the following 4 categories

1) Complete Dominance
2) Incomplete Dominance or Partial
3) Co-dominance

15 Saturday 4) Over dominance

Complete Dominance :-

The phenotype produced by heterozygotes is identical with that produced by homozygotes for the concerned dominant allele. The dominant allele in such situation is known as completely or fully dominant.

WW — round seed
ww — wrinkled

Sunday

Ww × Ww
round seed

WW : Ww : Ww : ww
3 : 1
ie. Complete dominance

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S	M	T	W	T	F	S
30						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

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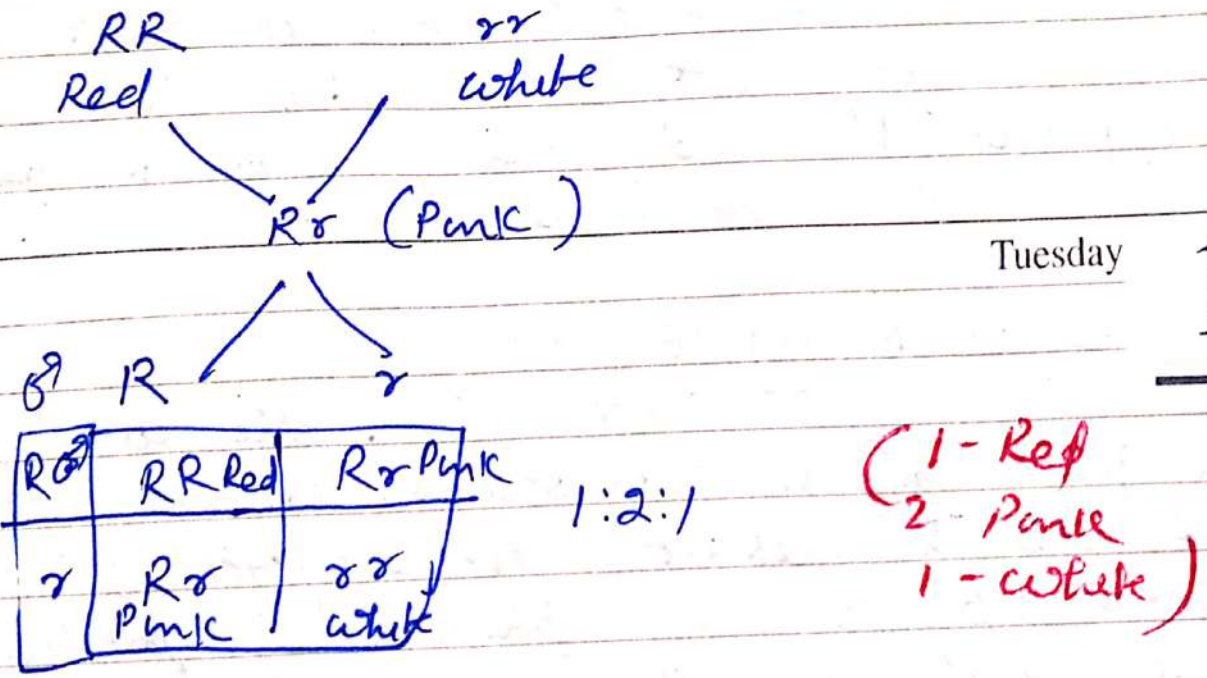
INCOMPLETE DOMINANCE :-

In many cases the intensity of phenotype produced by heterozygotes is less than that produced by homozygotes for the concerned dominant allele. Therefore the phenotype of heterozygotes falls between those of the homozygotes for the two concerned allele. Such a situation is K/S incomplete or partial dominance and the dominant allele is termed as incompletely or partial dominant.



1:2:1

(1 - Red
2 - Pink
1 - white)

Tuesday 18

CO-DOMINANCE

In some genes the intensity of character expression is greater in the heterozygotes than in the two concerned homozygotes. This situation is K/S overdominance.

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

19 Wednesday The white eye w gene of Drosop exhibit overdominance for some of the eye pigments. eg. sepiapteredene himmelba Allele w produces white eye in the homozyg state (ww) while its completely domenant allele W give rise to normal dull red eye colour. Eye pigment Sepiapteredene and himmelblaus are present in low conc. in ww homozygotes while WW homozygotes hav relatively higher conce. of these pegment However flies ~~&~~ heterozygous for this gene Ww have an appreciably hegher conc. of these two pegments than the two homozygotes WW and ww. In F2 generata ration ~~ark~~ would be 1:2:1.

20 Thursday

CO-DOMINANCE :-

when Both the allele of a gene express themselves in the heterozyg as a As a result heterozygotes for such genes possess the phenotypes produced by both the concerned alleles.

One of the most widely known and the earliest recognised human blood groups is the ABO blood group. These blood group arise due to the ~~+ce~~ of an antigen on the surface of red blood cells These antigens are produced by the gene i. One dominant allele of this gene viz the I^A allele produce

Friday 21

antigen A. which give rise to blood gr. A. Another denoted allele of the gene i viz I^B produce antigen B which is responsible for Blood gr. B. In the heterozygote I^AI^B both the allele I^A & I^B produce their respective antigens. As a result the heterozygotes have the Blood gr. A.B.

Marriages b/w heterozygotes I^AI^B having blood gr. AB produce 3 types of progeny. ¼ of their progeny are homozygous for the allele I^A (I^AI^A) and have A blood gr. while mother ¼ have B blood gr. since they are mozygous I^B allele (I^BI^B). The remaining of the progeny have AB blood gr. as they are heterozygous (I^AI^B) and possess both e antigen A & B. The ratio is 1:2:1.

Saturday 22

I^AI^B X I^AI^B — P,

I^A I^B I^A I^B — Gametes

♂ / ♀	I^A	I^B
I^A	I^AI^A (B.G A)	I^AI^B (B.G AB)
I^B	I^AI^B (B.G AB)	I^BI^B (B.G B)

1 : 2 : 1 — Genotype
A : AB : B — Blood Group

Sunday 23

2006

M	T	W	T	F	S
1	2	3	4	5	6
8	9	10	11	12	13
5	16	17	18	19	20
2	23	24	25	26	27
9	30	31			