

DOMINANT-RECESSIVE INHERITANCE (OR COMPLETE DOMINANCE)

- Of the pair of genes/alleles for a characteristic, one may be dominant (or more strongly inherited in the offspring), and the other may be _____ (or less strongly inherited in the offspring).
- Dominant genes/alleles are shown by _____ letters (e.g. B, T).
- Recessive genes/alleles are shown by _____ letters (e.g. b, t).

- **Example 1 – Eye Colour**

Dad has purebred _____ eyes (BB) and Mum has purebred blue eyes (bb). The **Punnet Square** below shows the _____ eye colours inherited by the children.

	B	B
b	Bb	Bb
b	Bb	Bb

Possible genotypes of children – all Bb

Possible phenotypes of children – all brown-eyed children

- **Example 2 – Eye Colour**

Dad has _____ brown eyes (Bb) and Mum has blue eyes (_____). The possible eye colours of the children will be ...

	B	b
b	Bb	bb
b	Bb	bb

Possible genotypes = 2Bb : 2bb

= 1Bb : 1bb

Possible phenotypes = 2 brown : 2 blue

= 1 brown : 1 blue

This means that about _____ of the children will be brown-eyed and the other ½ will be blue-eyed.

TEST-CROSS

If an individual has a dominant phenotype, it is not known what the exact genotype is. For example with the phenotype of brown eye colour, the genotype could be _____ or _____. To find out the genotype of a dominant phenotype, one must cross the individual with the dominant phenotype (e.g. BB or Bb) with an individual with the recessive phenotype (e.g. _____). If the offspring all have the dominant phenotype (e.g. brown eyes), then the parent was _____ (e.g. BB). If the offspring have any with the recessive phenotype, then the parent was hybrid (e.g. Bb).

MONOHYBRID CROSS

- If both parents are _____ or _____ for brown eye colour (both are Bb), the possible eye colours of the children are ...

	B	b
B	BB	Bb
b	Bb	bb

Possible genotypes = 1 BB : 2 Bb : 1 bb

Possible phenotypes = 3 brown : 1 blue

This means that _____ of the children will be brown-eyed, and _____ will be blue-eyed.

DIHYBRID CROSS

- A dihybrid cross is a cross between parents who are both hybrid for 2 characteristics.
- The ratio of a dihybrid cross is 9:3:3:1.